

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: P636877

Luminaire Tested: GWS-SA4B-760-U-SL2-W

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P636877
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-27)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA4B-760-U-SL2-W
Description: GALLEON WALL SLIM LUMINAIRE. (4) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II SPILL LIGHT ELIMINATOR OPTICS
Light Source: (64) 5700K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 14350.3 lumens
Efficiency: N/A
Efficacy: 152.0 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type II - Short
BUG Rating: B3 - U0 - G3

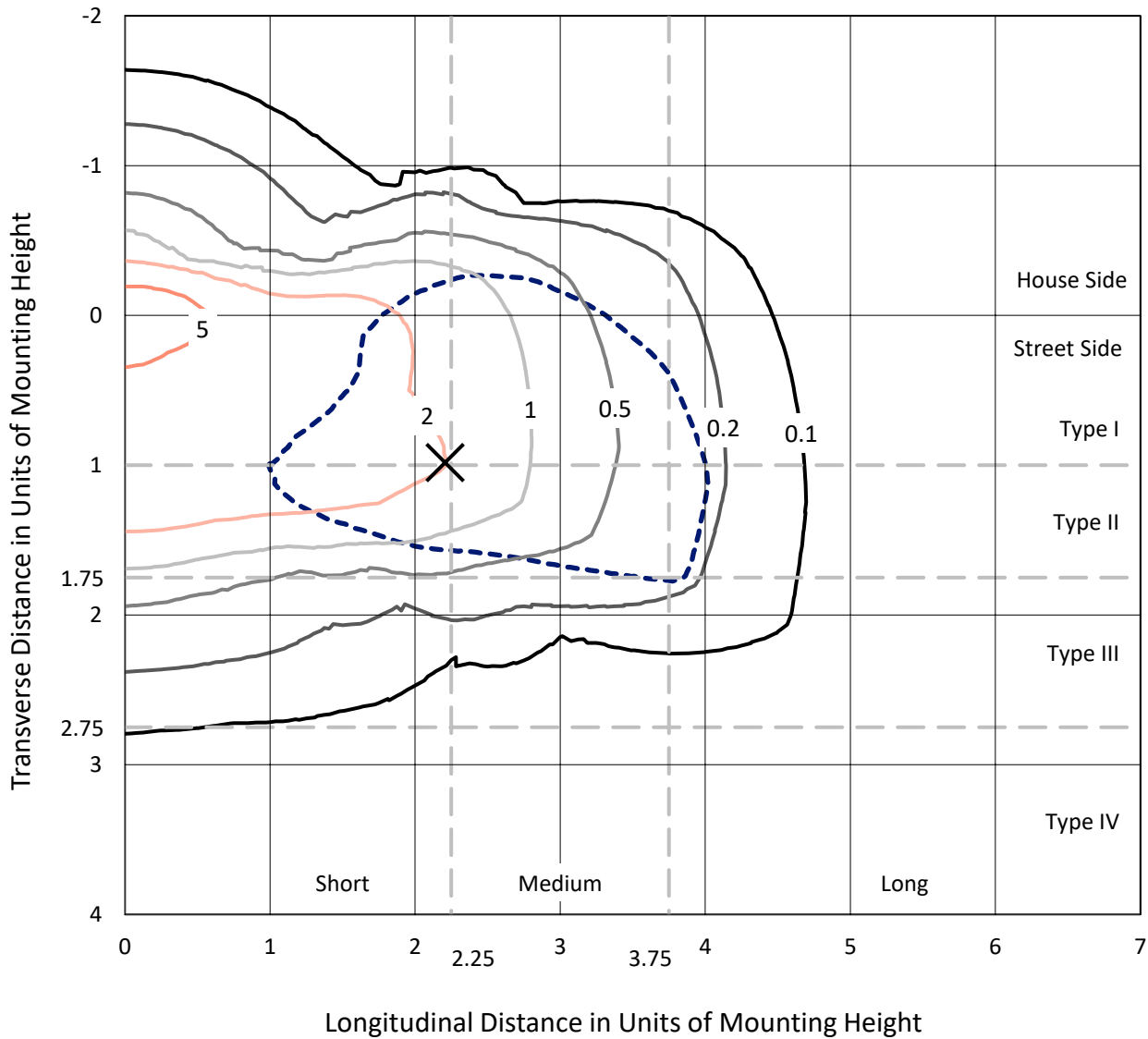
Input Watts (W): 94.4
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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 CATALOG NUMBER: GWS-SA4B-760-U-SL2-W

Iso-Footcandle Lines of Horizontal Illumination

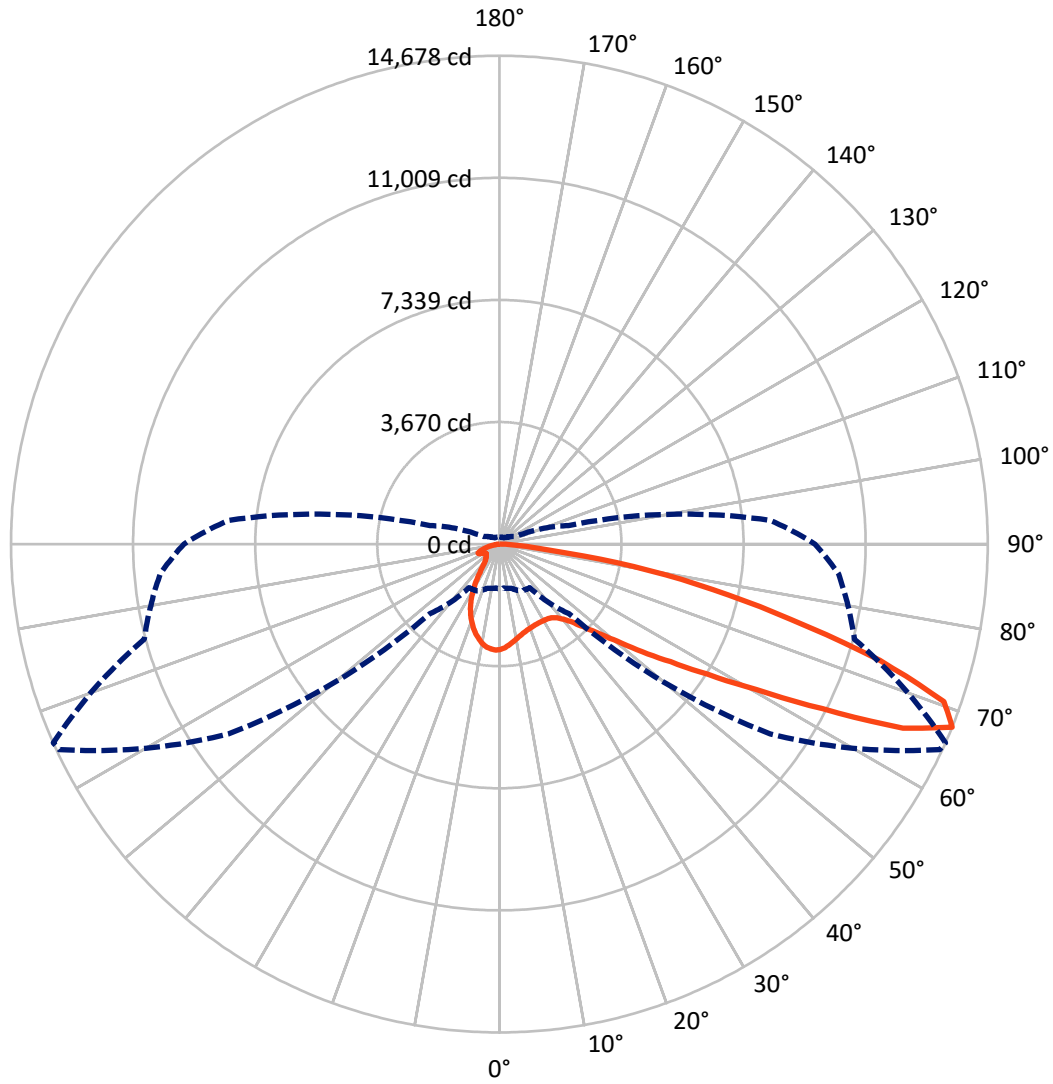
✕ Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 7.9 fc
 Type II - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 66-Deg Lateral - - - Horizontal Cone Through 67.5-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 2912.0 | 0.0 | 2912.0 |
| | % Fixture | 20.3 | 0.0 | 20.3 |
| Street Side | Lumens | 11438.3 | 0.0 | 11438.3 |
| | % Fixture | 79.7 | 0.0 | 79.7 |
| Total | Lumens | 14350.3 | 0.0 | 14350.3 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 278.3 | 1.9 |
| 10°-20° | 683.9 | 4.8 |
| 20°-30° | 940.1 | 6.6 |
| 30°-40° | 1285.3 | 9.0 |
| 40°-50° | 1947.5 | 13.6 |
| 50°-60° | 3027.5 | 21.1 |
| 60°-70° | 3685.9 | 25.7 |
| 70°-80° | 2245.3 | 15.6 |
| 80°-90° | 256.5 | 1.8 |
| 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° | 14350.3 | 100.0 |
| 0°-180° | 14350.3 | 100.0 |

Coefficient of Utilization



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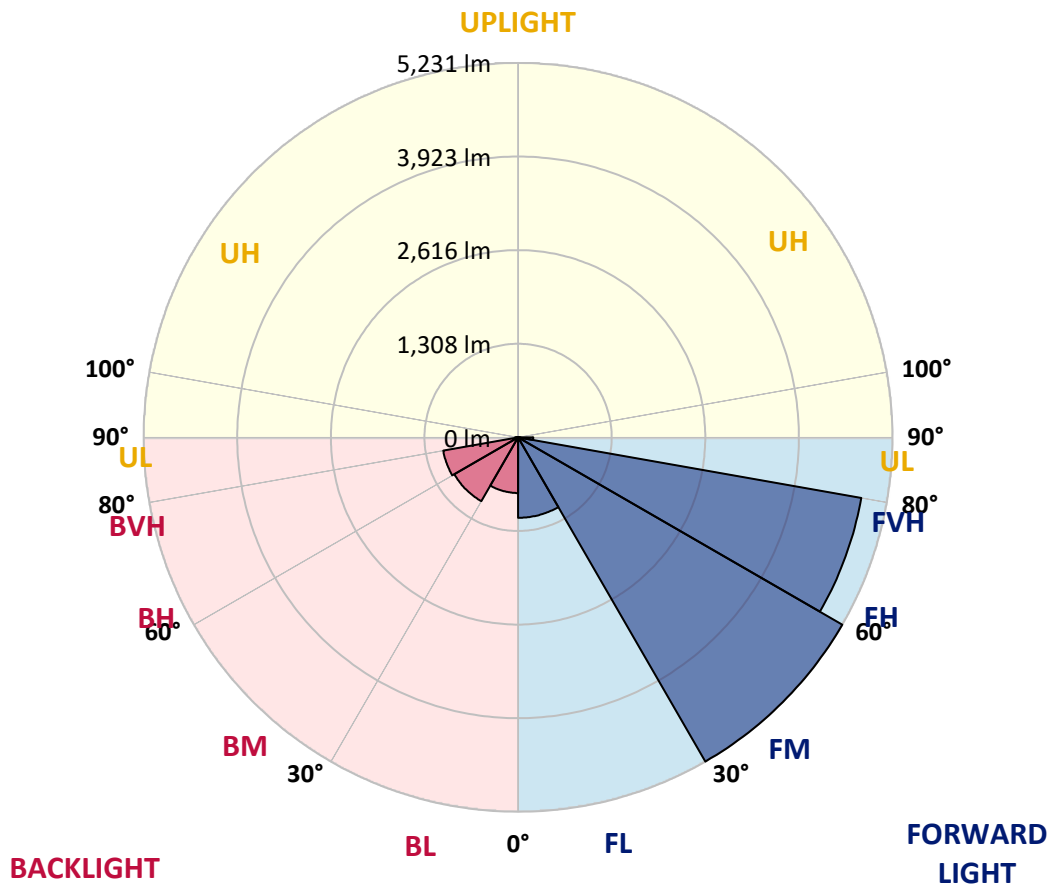
CATALOG NUMBER: GWS-SA4B-760-U-SL2-W

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1124.4 | 7.8 | | | |
| FM (30°-60°) | 5231.2 | 36.5 | | | |
| FH (60°-80°) | 4869.4 | 33.9 | | | G2/5000 |
| FVH (80°-90°) | 213.2 | 1.5 | | | G2/225 |
| BL (0°-30°) | 777.9 | 5.4 | B2/1000 | | |
| BM (30°-60°) | 1029.1 | 7.2 | B2/2500 | | |
| BH (60°-80°) | 1061.8 | 7.4 | B3/2500 | | G3/2500 |
| BVH (80°-90°) | 43.2 | 0.3 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B3-U0-G3

Type II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 66° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|
| 0° | 3171.0 | 3171.0 | 3171.0 | 3171.0 | 3171.0 | 3171.0 | 3171.0 | 3171.0 | 3171.0 | 3171.0 | 3171.0 |
| 2.5° | 2970.0 | 2980.5 | 2974.2 | 3014.0 | 3016.1 | 3066.3 | 3094.6 | 3118.7 | 3120.8 | 3152.2 | 3173.1 |
| 5° | 2766.9 | 2773.2 | 2773.2 | 2810.9 | 2836.0 | 2903.0 | 2967.9 | 3037.0 | 3042.2 | 3117.6 | 3175.2 |
| 7.5° | 2602.6 | 2608.8 | 2604.6 | 2654.9 | 2687.3 | 2761.7 | 2844.4 | 2950.1 | 2960.6 | 3082.0 | 3182.5 |
| 10° | 2473.8 | 2471.7 | 2482.2 | 2528.2 | 2570.1 | 2659.1 | 2751.2 | 2871.6 | 2887.3 | 3041.2 | 3190.9 |
| 12.5° | 2385.8 | 2387.9 | 2394.2 | 2442.4 | 2487.4 | 2575.3 | 2670.6 | 2801.5 | 2818.2 | 2994.1 | 3186.7 |
| 15° | 2344.0 | 2339.8 | 2345.0 | 2389.0 | 2431.9 | 2509.4 | 2607.8 | 2742.8 | 2759.6 | 2952.2 | 3187.8 |
| 17.5° | 2334.5 | 2331.4 | 2330.4 | 2361.8 | 2394.2 | 2466.5 | 2560.7 | 2697.8 | 2715.6 | 2925.0 | 3194.0 |
| 20° | 2363.9 | 2359.7 | 2348.2 | 2361.8 | 2375.4 | 2436.1 | 2527.2 | 2665.4 | 2685.3 | 2907.2 | 3206.6 |
| 22.5° | 2444.5 | 2437.1 | 2419.3 | 2402.6 | 2384.8 | 2421.4 | 2506.2 | 2641.3 | 2661.2 | 2895.7 | 3219.2 |
| 25° | 2567.0 | 2560.7 | 2541.8 | 2504.1 | 2439.2 | 2433.0 | 2502.1 | 2630.8 | 2650.7 | 2887.3 | 3224.4 |
| 27.5° | 2735.5 | 2726.1 | 2707.2 | 2652.8 | 2547.1 | 2475.9 | 2517.8 | 2629.8 | 2648.6 | 2877.9 | 3219.2 |
| 30° | 2935.5 | 2929.2 | 2918.7 | 2852.8 | 2711.4 | 2567.0 | 2553.3 | 2638.1 | 2652.8 | 2872.6 | 3208.7 |
| 32.5° | 3138.6 | 3132.3 | 3140.6 | 3109.2 | 2935.5 | 2717.7 | 2630.8 | 2661.2 | 2671.6 | 2871.6 | 3199.3 |
| 35° | 3317.6 | 3324.9 | 3385.6 | 3390.9 | 3220.2 | 2921.9 | 2753.3 | 2714.6 | 2716.7 | 2892.5 | 3203.5 |
| 37.5° | 3505.0 | 3533.2 | 3612.8 | 3680.8 | 3538.5 | 3191.9 | 2935.5 | 2815.1 | 2813.0 | 2945.9 | 3229.6 |
| 40° | 3753.1 | 3765.6 | 3867.2 | 3994.9 | 3905.9 | 3562.5 | 3194.0 | 2979.4 | 2964.8 | 3054.8 | 3299.8 |
| 42.5° | 3994.9 | 4025.3 | 4187.5 | 4334.1 | 4304.8 | 3980.2 | 3519.6 | 3225.4 | 3199.3 | 3247.4 | 3444.2 |
| 45° | 4302.7 | 4332.0 | 4514.2 | 4702.6 | 4756.0 | 4452.4 | 3936.3 | 3575.1 | 3548.9 | 3537.4 | 3709.1 |
| 47.5° | 4610.5 | 4640.8 | 4804.1 | 5076.3 | 5263.7 | 5042.8 | 4478.6 | 4036.8 | 3993.9 | 3948.8 | 4109.0 |
| 50° | 4817.8 | 4853.4 | 5009.3 | 5336.0 | 5775.7 | 5779.8 | 5121.4 | 4641.9 | 4587.4 | 4516.3 | 4672.2 |
| 52.5° | 4810.4 | 4833.5 | 4982.1 | 5359.0 | 6144.2 | 6626.8 | 5981.9 | 5412.4 | 5368.4 | 5213.5 | 5349.6 |
| 55° | 4432.5 | 4467.1 | 4616.8 | 5087.9 | 6183.9 | 7429.7 | 7246.5 | 6321.1 | 6242.6 | 5965.1 | 6114.8 |
| 57.5° | 3673.5 | 3702.8 | 3853.6 | 4434.6 | 5831.1 | 7841.2 | 8852.4 | 7478.9 | 7371.1 | 6783.8 | 6956.5 |
| 60° | 2773.2 | 2737.6 | 2808.8 | 3317.6 | 4987.4 | 7851.6 | 10269.9 | 9049.3 | 8869.2 | 7659.0 | 7803.5 |
| 62.5° | 2081.2 | 2045.6 | 2061.3 | 2204.7 | 3381.4 | 7217.2 | 11078.1 | 11197.5 | 10900.1 | 8647.3 | 8619.0 |
| 65° | 1644.7 | 1624.8 | 1669.8 | 1768.2 | 1971.3 | 5496.1 | 11084.4 | 13520.5 | 13333.1 | 9792.5 | 9455.4 |
| 67.5° | 1340.0 | 1327.4 | 1373.5 | 1555.7 | 1598.6 | 2953.3 | 9939.1 | 14605.1 | 14678.3 | 11046.7 | 10231.2 |
| 70° | 1079.3 | 1060.5 | 1132.7 | 1372.5 | 1486.6 | 1787.0 | 7119.9 | 14052.3 | 14170.6 | 11794.2 | 10012.4 |
| 72.5° | 745.4 | 746.4 | 783.1 | 1111.8 | 1435.3 | 1543.1 | 4027.4 | 11701.0 | 11957.5 | 11116.9 | 8802.2 |
| 75° | 502.5 | 506.7 | 517.2 | 733.9 | 1322.2 | 1497.0 | 2146.1 | 8858.7 | 9039.8 | 9188.5 | 7275.8 |
| 77.5° | 303.6 | 305.7 | 329.8 | 443.9 | 911.8 | 1397.6 | 1454.1 | 6421.6 | 6564.0 | 6057.3 | 4510.0 |
| 80° | 175.9 | 183.2 | 205.2 | 297.3 | 615.6 | 1050.0 | 1125.4 | 3937.3 | 4098.5 | 2692.6 | 1433.2 |
| 82.5° | 77.5 | 82.7 | 112.0 | 172.7 | 359.1 | 893.0 | 878.3 | 1555.7 | 1532.6 | 750.6 | 497.3 |
| 85° | 13.6 | 16.8 | 24.1 | 54.4 | 131.9 | 471.1 | 681.5 | 686.8 | 645.9 | 284.8 | 206.2 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 102.6 | 184.3 | 183.2 | 80.6 | 71.2 |
| 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: P636877
 CATALOG NUMBER: GWS-SA4B-760-U-SL2-W

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 3171.0 | 3171.0 | 3171.0 | 3171.0 | 3171.0 | 3171.0 | 3171.0 | 3171.0 | 3171.0 | 3171.0 | 3171.0 |
| 2.5° | 3186.7 | 3158.4 | 3183.6 | 3186.7 | 3181.5 | 3177.3 | 3145.9 | 3118.7 | 3115.5 | 3086.2 | 3086.2 |
| 5° | 3198.2 | 3172.1 | 3184.6 | 3160.5 | 3122.9 | 3084.1 | 3017.1 | 2971.1 | 2950.1 | 2912.4 | 2912.4 |
| 7.5° | 3213.9 | 3186.7 | 3172.1 | 3112.4 | 3024.4 | 2939.6 | 2831.8 | 2741.8 | 2705.1 | 2651.8 | 2649.7 |
| 10° | 3228.6 | 3194.0 | 3143.8 | 3027.6 | 2887.3 | 2752.3 | 2595.2 | 2467.5 | 2380.6 | 2316.8 | 2316.8 |
| 12.5° | 3227.5 | 3182.5 | 3083.1 | 2911.4 | 2717.7 | 2521.9 | 2312.6 | 2119.9 | 2004.8 | 1905.3 | 1899.0 |
| 15° | 3225.4 | 3163.7 | 3005.6 | 2776.3 | 2519.8 | 2248.7 | 1964.0 | 1712.7 | 1542.1 | 1444.7 | 1436.3 |
| 17.5° | 3223.4 | 3139.6 | 2918.7 | 2622.4 | 2279.1 | 1909.5 | 1533.7 | 1261.5 | 1119.1 | 1059.4 | 1061.5 |
| 20° | 3223.4 | 3112.4 | 2825.5 | 2445.5 | 2001.6 | 1503.3 | 1125.4 | 927.5 | 891.9 | 895.1 | 898.2 |
| 22.5° | 3213.9 | 3078.9 | 2721.9 | 2252.9 | 1692.8 | 1105.5 | 830.2 | 763.2 | 782.0 | 811.3 | 815.5 |
| 25° | 3191.9 | 3023.4 | 2601.5 | 2039.3 | 1325.4 | 805.1 | 677.3 | 664.8 | 699.3 | 736.0 | 746.4 |
| 27.5° | 3157.4 | 2959.5 | 2466.5 | 1789.1 | 975.7 | 647.0 | 595.7 | 594.6 | 621.8 | 649.1 | 658.5 |
| 30° | 3120.8 | 2888.4 | 2324.1 | 1510.7 | 706.6 | 563.2 | 543.3 | 543.3 | 556.9 | 573.7 | 571.6 |
| 32.5° | 3077.8 | 2816.1 | 2171.2 | 1220.7 | 575.8 | 516.1 | 509.8 | 506.7 | 508.8 | 515.1 | 515.1 |
| 35° | 3041.2 | 2752.3 | 2014.2 | 913.9 | 516.1 | 489.9 | 483.7 | 476.3 | 473.2 | 469.0 | 471.1 |
| 37.5° | 3027.6 | 2702.0 | 1851.9 | 688.8 | 486.8 | 471.1 | 460.6 | 450.2 | 442.8 | 440.7 | 439.7 |
| 40° | 3049.6 | 2681.1 | 1689.7 | 567.4 | 465.9 | 451.2 | 439.7 | 426.1 | 419.8 | 419.8 | 419.8 |
| 42.5° | 3135.4 | 2696.8 | 1524.3 | 513.0 | 451.2 | 434.5 | 417.7 | 405.1 | 403.0 | 405.1 | 406.2 |
| 45° | 3292.4 | 2757.5 | 1352.6 | 485.8 | 438.6 | 417.7 | 397.8 | 388.4 | 388.4 | 390.5 | 390.5 |
| 47.5° | 3573.0 | 2916.6 | 1183.0 | 469.0 | 426.1 | 404.1 | 383.2 | 373.7 | 372.7 | 374.8 | 374.8 |
| 50° | 4058.8 | 3203.5 | 1030.1 | 457.5 | 416.7 | 393.6 | 372.7 | 360.1 | 357.0 | 355.9 | 355.9 |
| 52.5° | 4671.2 | 3700.7 | 932.8 | 449.1 | 405.1 | 382.1 | 361.2 | 344.4 | 338.1 | 335.0 | 335.0 |
| 55° | 5411.3 | 4363.4 | 932.8 | 442.8 | 390.5 | 368.5 | 344.4 | 327.7 | 318.3 | 314.1 | 314.1 |
| 57.5° | 6249.9 | 5135.0 | 1094.0 | 437.6 | 379.0 | 352.8 | 326.6 | 309.9 | 299.4 | 293.1 | 293.1 |
| 60° | 7103.1 | 5950.5 | 1492.9 | 430.3 | 368.5 | 332.9 | 306.7 | 291.0 | 277.4 | 270.1 | 269.0 |
| 62.5° | 7987.7 | 6848.7 | 2018.4 | 434.5 | 361.2 | 314.1 | 285.8 | 268.0 | 256.5 | 249.2 | 248.1 |
| 65° | 8798.0 | 7704.0 | 2478.0 | 466.9 | 362.2 | 297.3 | 261.7 | 246.0 | 236.6 | 227.2 | 226.1 |
| 67.5° | 9485.8 | 8176.2 | 2155.5 | 532.9 | 384.2 | 277.4 | 237.6 | 221.9 | 213.6 | 207.3 | 206.2 |
| 70° | 9004.2 | 7455.9 | 1222.8 | 573.7 | 414.6 | 256.5 | 210.4 | 200.0 | 191.6 | 187.4 | 186.3 |
| 72.5° | 7699.8 | 6312.7 | 817.6 | 506.7 | 377.9 | 229.3 | 185.3 | 176.9 | 170.6 | 165.4 | 164.4 |
| 75° | 6237.3 | 5006.2 | 625.0 | 415.6 | 294.2 | 186.3 | 159.1 | 152.8 | 146.6 | 141.3 | 140.3 |
| 77.5° | 3690.3 | 2892.5 | 460.6 | 328.7 | 207.3 | 145.5 | 131.9 | 126.7 | 120.4 | 116.2 | 115.2 |
| 80° | 1177.7 | 1005.0 | 292.1 | 226.1 | 137.1 | 112.0 | 101.5 | 97.4 | 91.1 | 85.8 | 84.8 |
| 82.5° | 449.1 | 388.4 | 154.9 | 115.2 | 91.1 | 76.4 | 68.0 | 63.9 | 59.7 | 54.4 | 53.4 |
| 85° | 198.9 | 186.3 | 85.8 | 61.8 | 49.2 | 37.7 | 33.5 | 31.4 | 26.2 | 22.0 | 20.9 |
| 87.5° | 70.1 | 70.1 | 36.6 | 17.8 | 10.5 | 5.2 | 3.1 | 1.0 | 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 |

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



LM-79-2008: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGRAW-EDISON

Report Number: SP1-1908-441-9-R4

Test Date: 10/23/2019

Luminaire Tested: SA1C-760-U-5WQ

Data in this report applies to families of products SA1C-760-U-5WQ .

Test Information

Test Method: LM-79-2008
 Report Number: SP1-1908-441-9-R4
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 10/28/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: McGRAW-EDISON
 Catalog Number: **SA1C-760-U-5WQ**
 Description: McGRAW EDISON ROADWAY AND AREA LUMINAIRE

THIS IS A REVISION OF SP1-1908-441-4-R3. TO UPDATE THE CATALOG INFORMATION.TESTED IN SITU. ROADWAY AND AREA LUMINAIRE. (1) 70 CRI, 5000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

Spectral Parameters

| | | | | | |
|---------------------------|--------|-----------|------|------|-------|
| CCT (K): | 5474 | CRI (Ra): | 71.7 | R9: | -27.1 |
| CIE u': | 0.2052 | R1: | 70.6 | R10: | 40.8 |
| CIE v': | 0.4804 | R2: | 74.6 | R11: | 74.6 |
| Duv: | 0.0025 | R3: | 78.3 | R12: | 50.4 |
| CIE x: | 0.3330 | R4: | 73.8 | R13: | 70.0 |
| CIE y: | 0.3466 | R5: | 72.4 | R14: | 87.8 |
| CIE z: | 0.3204 | R6: | 67.5 | | |
| Peak Wavelength (nm): | 442 | R7: | 77.5 | | |
| Dominant Wavelength (nm): | 554 | R8: | 58.9 | | |
| Purity: | 4.1 | | | | |
| Rf: | 72.1 | | | | |
| Rg: | 97.2 | | | | |



Test Conditions

Stabilization Time: 240M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 24.6/31%
 Sphere Temperature (°C): 25.9

REPORT NUMBER: SP1-1908-441-9-R4

| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/28/2019 | 12/28/2019 |
| Power Meter | IN0071 | 12/5/2018 | 12/5/2019 |
| AC Power Source | IN0063 | 12/5/2018 | 12/5/2019 |
| DC Power Source | IN0208 | 12/5/2018 | 12/5/2019 |
| Sphere Thermometer | IN0085 | 12/5/2018 | 12/5/2019 |
| Room Thermometer | IN0046 | 12/5/2018 | 12/5/2019 |

REPORT NUMBER: SP1-1908-441-9-R4

CIE 1931 Chromaticity Diagram



CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 5700K 4-step quadrangle

REPORT NUMBER: SP1-1908-441-9-R4

Photopic Flux vs. Wavelength



#####

| λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360 | 3540 | NR | 490 | 33363 | NR | 620 | 80193 | NR | 750 | 4663 | NR | 880 | 4678 | NR |
| 365 | 2862 | NR | 495 | 44177 | NR | 625 | 73091 | NR | 755 | 4147 | NR | 885 | 4128 | NR |
| 370 | 2865 | NR | 500 | 57019 | NR | 630 | 66269 | NR | 760 | 4040 | NR | 890 | 4504 | NR |
| 375 | 3254 | NR | 505 | 70030 | NR | 635 | 60012 | NR | 765 | 3474 | NR | 895 | 4371 | NR |
| 380 | 3076 | NR | 510 | 81972 | NR | 640 | 53914 | NR | 770 | 3469 | NR | 900 | 4082 | NR |
| 385 | 2904 | NR | 515 | 92590 | NR | 645 | 48385 | NR | 775 | 3181 | NR | 905 | 2982 | NR |
| 390 | 2689 | NR | 520 | 100305 | NR | 650 | 43219 | NR | 780 | 2969 | NR | 910 | 4351 | NR |
| 395 | 2619 | NR | 525 | 107452 | NR | 655 | 38562 | NR | 785 | 3132 | NR | 915 | 3365 | NR |
| 400 | 2679 | NR | 530 | 111373 | NR | 660 | 34110 | NR | 790 | 2507 | NR | 920 | 3430 | NR |
| 405 | 3515 | NR | 535 | 114505 | NR | 665 | 30085 | NR | 795 | 2968 | NR | 925 | 4264 | NR |
| 410 | 6934 | NR | 540 | 116408 | NR | 670 | 26205 | NR | 800 | 2758 | NR | 930 | 4095 | NR |
| 415 | 14943 | NR | 545 | 118700 | NR | 675 | 22906 | NR | 805 | 2872 | NR | 935 | 5048 | NR |
| 420 | 31939 | NR | 550 | 119209 | NR | 680 | 20058 | NR | 810 | 3094 | NR | 940 | 4074 | NR |
| 425 | 64701 | NR | 555 | 120742 | NR | 685 | 17413 | NR | 815 | 3222 | NR | 945 | 4949 | NR |
| 430 | 110939 | NR | 560 | 121594 | NR | 690 | 15447 | NR | 820 | 3238 | NR | 950 | 4387 | NR |
| 435 | 164597 | NR | 565 | 121913 | NR | 695 | 13398 | NR | 825 | 3524 | NR | 955 | 4978 | NR |
| 440 | 207696 | NR | 570 | 122147 | NR | 700 | 11777 | NR | 830 | 2921 | NR | 960 | 4706 | NR |
| 445 | 201830 | NR | 575 | 121605 | NR | 705 | 10412 | NR | 835 | 3595 | NR | 965 | 5083 | NR |
| 450 | 145410 | NR | 580 | 120248 | NR | 710 | 9544 | NR | 840 | 3016 | NR | 970 | 4522 | NR |
| 455 | 89594 | NR | 585 | 117717 | NR | 715 | 8940 | NR | 845 | 4032 | NR | 975 | 4740 | NR |
| 460 | 58321 | NR | 590 | 114359 | NR | 720 | 7897 | NR | 850 | 3579 | NR | 980 | 6122 | NR |
| 465 | 39318 | NR | 595 | 109974 | NR | 725 | 7045 | NR | 855 | 4571 | NR | 985 | 6450 | NR |
| 470 | 27693 | NR | 600 | 105269 | NR | 730 | 6483 | NR | 860 | 4485 | NR | 990 | 4875 | NR |
| 475 | 23081 | NR | 605 | 99453 | NR | 735 | 5838 | NR | 865 | 3978 | NR | 995 | 4764 | NR |
| 480 | 23002 | NR | 610 | 92921 | NR | 740 | 5261 | NR | 870 | 4298 | NR | 1000 | 3640 | NR |
| 485 | 26201 | NR | 615 | 86989 | NR | 745 | 4760 | NR | 875 | 4356 | NR | | | |

REPORT NUMBER: SP1-1908-441-9-R4

Scotopic Flux vs. Wavelength



Scotopic Lumens: 13759.3 S/P: 1.85

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 3540 | NR | 490 | 33363 | NR | 620 | 80193 | NR | 750 | 4663 | NR | 880 | 4678 | NR |
| 365 | 2862 | NR | 495 | 44177 | NR | 625 | 73091 | NR | 755 | 4147 | NR | 885 | 4128 | NR |
| 370 | 2865 | NR | 500 | 57019 | NR | 630 | 66269 | NR | 760 | 4040 | NR | 890 | 4504 | NR |
| 375 | 3254 | NR | 505 | 70030 | NR | 635 | 60012 | NR | 765 | 3474 | NR | 895 | 4371 | NR |
| 380 | 3076 | NR | 510 | 81972 | NR | 640 | 53914 | NR | 770 | 3469 | NR | 900 | 4082 | NR |
| 385 | 2904 | NR | 515 | 92590 | NR | 645 | 48385 | NR | 775 | 3181 | NR | 905 | 2982 | NR |
| 390 | 2689 | NR | 520 | 100305 | NR | 650 | 43219 | NR | 780 | 2969 | NR | 910 | 4351 | NR |
| 395 | 2619 | NR | 525 | 107452 | NR | 655 | 38562 | NR | 785 | 3132 | NR | 915 | 3365 | NR |
| 400 | 2679 | NR | 530 | 111373 | NR | 660 | 34110 | NR | 790 | 2507 | NR | 920 | 3430 | NR |
| 405 | 3515 | NR | 535 | 114505 | NR | 665 | 30085 | NR | 795 | 2968 | NR | 925 | 4264 | NR |
| 410 | 6934 | NR | 540 | 116408 | NR | 670 | 26205 | NR | 800 | 2758 | NR | 930 | 4095 | NR |
| 415 | 14943 | NR | 545 | 118700 | NR | 675 | 22906 | NR | 805 | 2872 | NR | 935 | 5048 | NR |
| 420 | 31939 | NR | 550 | 119209 | NR | 680 | 20058 | NR | 810 | 3094 | NR | 940 | 4074 | NR |
| 425 | 64701 | NR | 555 | 120742 | NR | 685 | 17413 | NR | 815 | 3222 | NR | 945 | 4949 | NR |
| 430 | 110939 | NR | 560 | 121594 | NR | 690 | 15447 | NR | 820 | 3238 | NR | 950 | 4387 | NR |
| 435 | 164597 | NR | 565 | 121913 | NR | 695 | 13398 | NR | 825 | 3524 | NR | 955 | 4978 | NR |
| 440 | 207696 | NR | 570 | 122147 | NR | 700 | 11777 | NR | 830 | 2921 | NR | 960 | 4706 | NR |
| 445 | 201830 | NR | 575 | 121605 | NR | 705 | 10412 | NR | 835 | 3595 | NR | 965 | 5083 | NR |
| 450 | 145410 | NR | 580 | 120248 | NR | 710 | 9544 | NR | 840 | 3016 | NR | 970 | 4522 | NR |
| 455 | 89594 | NR | 585 | 117717 | NR | 715 | 8940 | NR | 845 | 4032 | NR | 975 | 4740 | NR |
| 460 | 58321 | NR | 590 | 114359 | NR | 720 | 7897 | NR | 850 | 3579 | NR | 980 | 6122 | NR |
| 465 | 39318 | NR | 595 | 109974 | NR | 725 | 7045 | NR | 855 | 4571 | NR | 985 | 6450 | NR |
| 470 | 27693 | NR | 600 | 105269 | NR | 730 | 6483 | NR | 860 | 4485 | NR | 990 | 4875 | NR |
| 475 | 23081 | NR | 605 | 99453 | NR | 735 | 5838 | NR | 865 | 3978 | NR | 995 | 4764 | NR |
| 480 | 23002 | NR | 610 | 92921 | NR | 740 | 5261 | NR | 870 | 4298 | NR | 1000 | 3640 | NR |
| 485 | 26201 | NR | 615 | 86989 | NR | 745 | 4760 | NR | 875 | 4356 | NR | | | |

REPORT NUMBER: SP1-1908-441-9-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 5527.6 M/P: 0.74

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 3540 | NR | 490 | 33363 | NR | 620 | 80193 | NR | 750 | 4663 | NR | 880 | 4678 | NR |
| 365 | 2862 | NR | 495 | 44177 | NR | 625 | 73091 | NR | 755 | 4147 | NR | 885 | 4128 | NR |
| 370 | 2865 | NR | 500 | 57019 | NR | 630 | 66269 | NR | 760 | 4040 | NR | 890 | 4504 | NR |
| 375 | 3254 | NR | 505 | 70030 | NR | 635 | 60012 | NR | 765 | 3474 | NR | 895 | 4371 | NR |
| 380 | 3076 | NR | 510 | 81972 | NR | 640 | 53914 | NR | 770 | 3469 | NR | 900 | 4082 | NR |
| 385 | 2904 | NR | 515 | 92590 | NR | 645 | 48385 | NR | 775 | 3181 | NR | 905 | 2982 | NR |
| 390 | 2689 | NR | 520 | 100305 | NR | 650 | 43219 | NR | 780 | 2969 | NR | 910 | 4351 | NR |
| 395 | 2619 | NR | 525 | 107452 | NR | 655 | 38562 | NR | 785 | 3132 | NR | 915 | 3365 | NR |
| 400 | 2679 | NR | 530 | 111373 | NR | 660 | 34110 | NR | 790 | 2507 | NR | 920 | 3430 | NR |
| 405 | 3515 | NR | 535 | 114505 | NR | 665 | 30085 | NR | 795 | 2968 | NR | 925 | 4264 | NR |
| 410 | 6934 | NR | 540 | 116408 | NR | 670 | 26205 | NR | 800 | 2758 | NR | 930 | 4095 | NR |
| 415 | 14943 | NR | 545 | 118700 | NR | 675 | 22906 | NR | 805 | 2872 | NR | 935 | 5048 | NR |
| 420 | 31939 | NR | 550 | 119209 | NR | 680 | 20058 | NR | 810 | 3094 | NR | 940 | 4074 | NR |
| 425 | 64701 | NR | 555 | 120742 | NR | 685 | 17413 | NR | 815 | 3222 | NR | 945 | 4949 | NR |
| 430 | 110939 | NR | 560 | 121594 | NR | 690 | 15447 | NR | 820 | 3238 | NR | 950 | 4387 | NR |
| 435 | 164597 | NR | 565 | 121913 | NR | 695 | 13398 | NR | 825 | 3524 | NR | 955 | 4978 | NR |
| 440 | 207696 | NR | 570 | 122147 | NR | 700 | 11777 | NR | 830 | 2921 | NR | 960 | 4706 | NR |
| 445 | 201830 | NR | 575 | 121605 | NR | 705 | 10412 | NR | 835 | 3595 | NR | 965 | 5083 | NR |
| 450 | 145410 | NR | 580 | 120248 | NR | 710 | 9544 | NR | 840 | 3016 | NR | 970 | 4522 | NR |
| 455 | 89594 | NR | 585 | 117717 | NR | 715 | 8940 | NR | 845 | 4032 | NR | 975 | 4740 | NR |
| 460 | 58321 | NR | 590 | 114359 | NR | 720 | 7897 | NR | 850 | 3579 | NR | 980 | 6122 | NR |
| 465 | 39318 | NR | 595 | 109974 | NR | 725 | 7045 | NR | 855 | 4571 | NR | 985 | 6450 | NR |
| 470 | 27693 | NR | 600 | 105269 | NR | 730 | 6483 | NR | 860 | 4485 | NR | 990 | 4875 | NR |
| 475 | 23081 | NR | 605 | 99453 | NR | 735 | 5838 | NR | 865 | 3978 | NR | 995 | 4764 | NR |
| 480 | 23002 | NR | 610 | 92921 | NR | 740 | 5261 | NR | 870 | 4298 | NR | 1000 | 3640 | NR |
| 485 | 26201 | NR | 615 | 86989 | NR | 745 | 4760 | NR | 875 | 4356 | NR | | | |

REPORT NUMBER: SP1-1908-441-9-R4

TM-30-18

Summary

$R_f = 72.1$
 $R_g = 97.2$
 CIE $R_a = 71.7$
 $R_g = -27.1$



Color Vector Graphics



REPORT NUMBER: SP1-1908-441-9-R4

TM-30-18

Individual Sample Fidelity Index ($R_{f,i}$)

| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 54 | CES51 = 88 | CES76 = 43 |
| CES02 = 59 | CES27 = 79 | CES52 = 90 | CES77 = 64 |
| CES03 = 30 | CES28 = 77 | CES53 = 77 | CES78 = 46 |
| CES04 = 69 | CES29 = 50 | CES54 = 81 | CES79 = 74 |
| CES05 = 46 | CES30 = 59 | CES55 = 80 | CES80 = 70 |
| CES06 = 50 | CES31 = 55 | CES56 = 70 | CES81 = 71 |
| CES07 = 38 | CES32 = 52 | CES57 = 68 | CES82 = 88 |
| CES08 = 38 | CES33 = 63 | CES58 = 70 | CES83 = 82 |
| CES09 = 29 | CES34 = 63 | CES59 = 88 | CES84 = 87 |
| CES10 = 72 | CES35 = 79 | CES60 = 92 | CES85 = 84 |
| CES11 = 55 | CES36 = 90 | CES61 = 88 | CES86 = 76 |
| CES12 = 61 | CES37 = 72 | CES62 = 81 | CES87 = 75 |
| CES13 = 41 | CES38 = 68 | CES63 = 75 | CES88 = 77 |
| CES14 = 74 | CES39 = 91 | CES64 = 72 | CES89 = 76 |
| CES15 = 70 | CES40 = 83 | CES65 = 65 | CES90 = 76 |
| CES16 = 46 | CES41 = 84 | CES66 = 66 | CES91 = 92 |
| CES17 = 48 | CES42 = 70 | CES67 = 64 | CES92 = 70 |
| CES18 = 55 | CES43 = 69 | CES68 = 71 | CES93 = 83 |
| CES19 = 70 | CES44 = 98 | CES69 = 80 | CES94 = 60 |
| CES20 = 64 | CES45 = 79 | CES70 = 58 | CES95 = 73 |
| CES21 = 85 | CES46 = 78 | CES71 = 55 | CES96 = 79 |
| CES22 = 77 | CES47 = 76 | CES72 = 84 | CES97 = 84 |
| CES23 = 91 | CES48 = 68 | CES73 = 47 | CES98 = 73 |
| CES24 = 90 | CES49 = 78 | CES74 = 94 | CES99 = 62 |
| CES25 = 71 | CES50 = 87 | CES75 = 51 | |



REPORT NUMBER: SP1-1908-441-9-R4

TM-30-18

Color Rendition by Hue-Angle Bin



REPORT NUMBER: SP1-1908-441-9-R4

TM-30-18

Measure Comparisons



(END OF REPORT)