

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: P638827

Luminaire Tested: GWS-SA4F-750-U-T3-W-GRSWH

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P638827
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-25)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA4F-750-U-T3-W-GRSWH
Description: GALLEON WALL SLIM LUMINAIRE. (4) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III OPTICS W/ FACTORY INSTALLED GLARE SHIELD, WH
Light Source: (64) 5000K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 29705.7 lumens
Efficiency: N/A
Efficacy: 131.8 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type II - Short
BUG Rating: B4 - U0 - G3

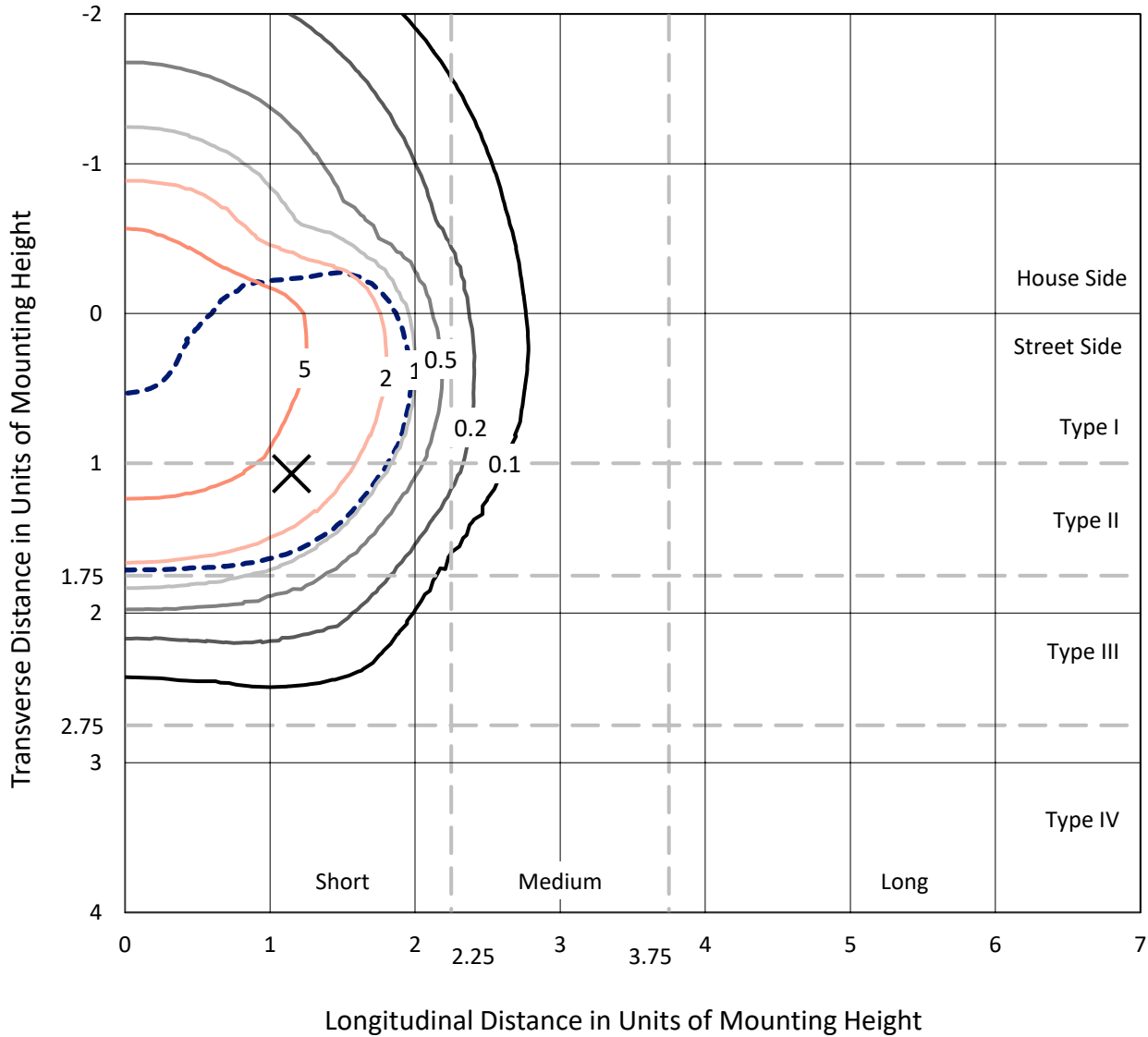
Input Watts (W): 225.3
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

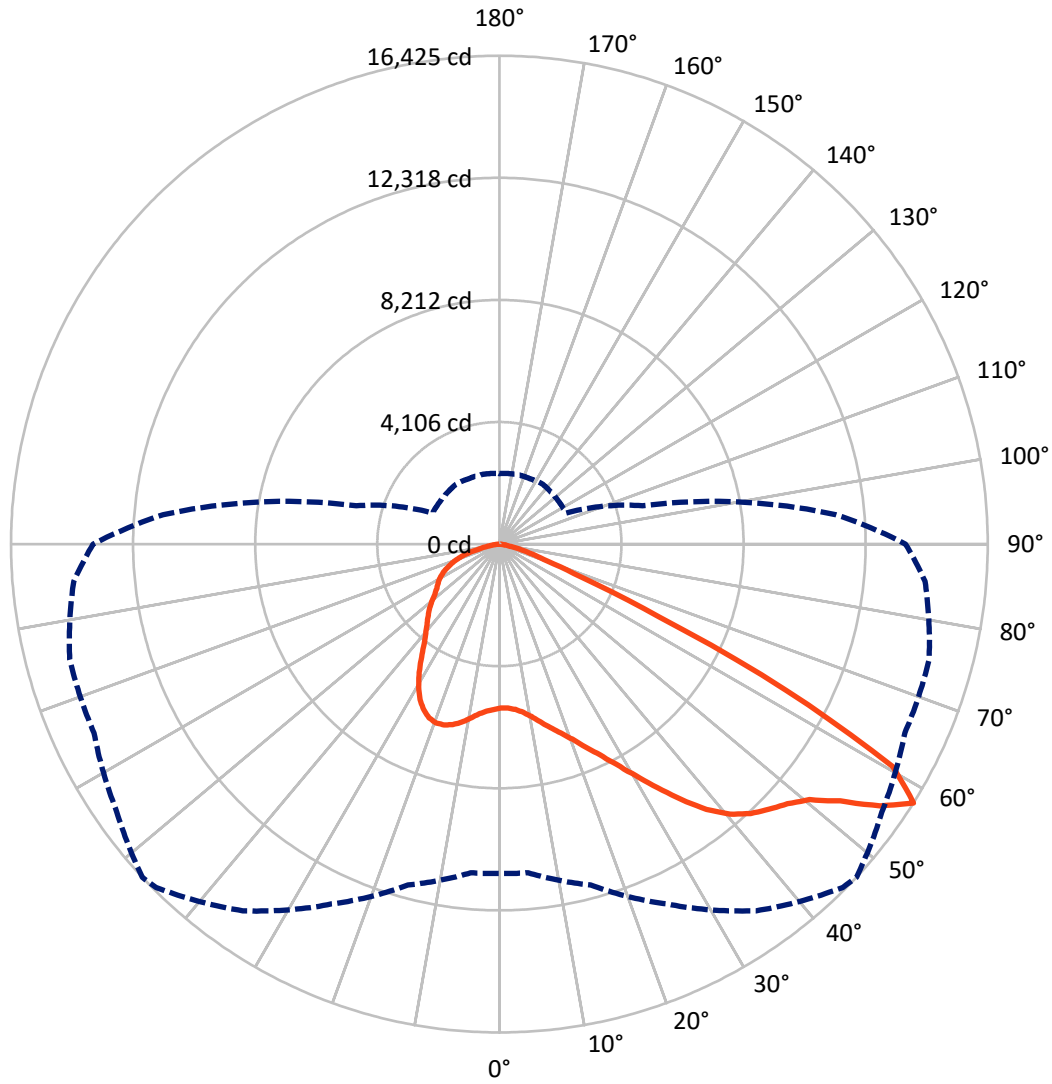
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 9.8 fc
 Type II - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 47-Deg Lateral - - - Horizontal Cone Through 57.5-Deg Vertical

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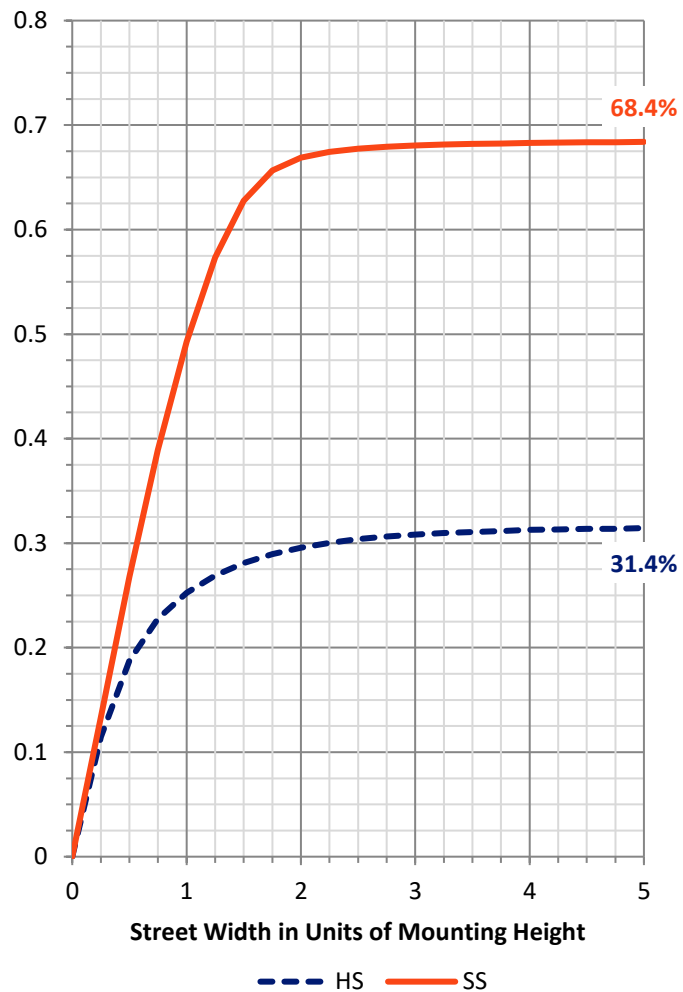
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 9401.8 | 0.0 | 9401.8 |
| | % Fixture | 31.6 | 0.0 | 31.6 |
| Street Side | Lumens | 20303.9 | 0.0 | 20303.9 |
| | % Fixture | 68.4 | 0.0 | 68.4 |
| Total | Lumens | 29705.7 | 0.0 | 29705.7 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 543.4 | 1.8 |
| 10°-20° | 1787.1 | 6.0 |
| 20°-30° | 3217.9 | 10.8 |
| 30°-40° | 4860.3 | 16.4 |
| 40°-50° | 6545.0 | 22.0 |
| 50°-60° | 7864.7 | 26.5 |
| 60°-70° | 3830.3 | 12.9 |
| 70°-80° | 943.6 | 3.2 |
| 80°-90° | 113.4 | 0.4 |
| 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° | 29705.7 | 100.0 |
| 0°-180° | 29705.7 | 100.0 |

Coefficient of Utilization



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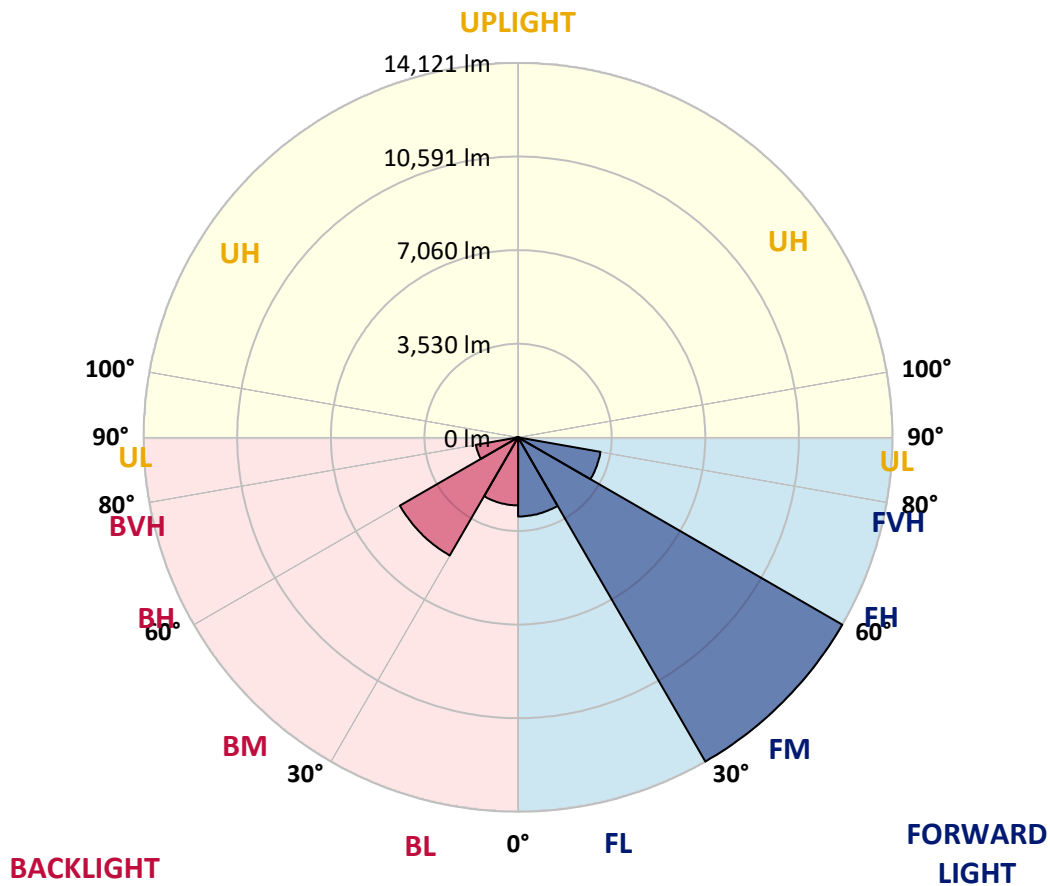
CATALOG NUMBER: GWS-SA4F-750-U-T3-W-GRSWH

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|---------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 2983.8 | 10.0 | | | |
| FM (30°-60°) | 14120.7 | 47.5 | | | |
| FH (60°-80°) | 3156.8 | 10.6 | | | G2/5000 |
| FVH (80°-90°) | 42.6 | 0.1 | | | G1/100 |
| BL (0°-30°) | 2564.6 | 8.6 | B4/5000 | | |
| BM (30°-60°) | 5149.3 | 17.3 | B4/8500 | | |
| BH (60°-80°) | 1617.1 | 5.4 | B3/2500 | | G3/2500 |
| BVH (80°-90°) | 70.8 | 0.2 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B4-U0-G3

Type II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 47° | 55° | 65° | 75° | 85° |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0° | 5509.0 | 5509.0 | 5509.0 | 5509.0 | 5509.0 | 5509.0 | 5509.0 | 5509.0 | 5509.0 | 5509.0 | 5509.0 |
| 2.5° | 5499.0 | 5496.5 | 5496.5 | 5511.5 | 5511.5 | 5516.4 | 5523.9 | 5531.4 | 5533.9 | 5521.4 | 5494.0 |
| 5° | 5558.9 | 5558.9 | 5558.9 | 5571.3 | 5571.3 | 5576.3 | 5586.3 | 5588.8 | 5586.3 | 5566.4 | 5538.9 |
| 7.5° | 5653.7 | 5653.7 | 5656.2 | 5671.1 | 5683.6 | 5691.1 | 5708.6 | 5706.1 | 5698.6 | 5666.2 | 5631.2 |
| 10° | 5808.4 | 5815.9 | 5823.3 | 5840.8 | 5865.8 | 5883.2 | 5895.7 | 5895.7 | 5885.7 | 5835.8 | 5790.9 |
| 12.5° | 6027.9 | 6037.9 | 6045.4 | 6060.4 | 6080.3 | 6110.3 | 6137.7 | 6137.7 | 6125.2 | 6062.9 | 5995.5 |
| 15° | 6284.9 | 6294.9 | 6292.4 | 6297.4 | 6334.8 | 6377.2 | 6399.7 | 6414.7 | 6419.6 | 6332.3 | 6227.5 |
| 17.5° | 6579.3 | 6589.3 | 6579.3 | 6564.4 | 6569.3 | 6636.7 | 6676.6 | 6731.5 | 6764.0 | 6646.7 | 6479.5 |
| 20° | 6846.3 | 6836.3 | 6836.3 | 6846.3 | 6861.3 | 6943.6 | 7003.5 | 7093.3 | 7133.2 | 6991.0 | 6731.5 |
| 22.5° | 7128.2 | 7150.7 | 7140.7 | 7140.7 | 7200.6 | 7337.8 | 7410.2 | 7527.4 | 7569.8 | 7385.2 | 7035.9 |
| 25° | 7492.5 | 7512.5 | 7507.5 | 7512.5 | 7582.3 | 7776.9 | 7849.3 | 8066.3 | 8108.8 | 7844.3 | 7372.7 |
| 27.5° | 7891.7 | 7924.1 | 7939.1 | 7934.1 | 8046.4 | 8300.9 | 8390.7 | 8692.6 | 8769.9 | 8358.3 | 7732.0 |
| 30° | 8410.7 | 8445.6 | 8458.1 | 8453.1 | 8585.3 | 8932.1 | 9034.4 | 9378.7 | 9488.5 | 8967.0 | 8188.6 |
| 32.5° | 9011.9 | 9046.9 | 9084.3 | 9099.3 | 9268.9 | 9623.2 | 9770.4 | 10127.2 | 10284.4 | 9670.6 | 8740.0 |
| 35° | 9608.3 | 9638.2 | 9710.5 | 9827.8 | 10059.8 | 10421.6 | 10551.4 | 10903.2 | 11055.4 | 10401.7 | 9406.2 |
| 37.5° | 10266.9 | 10286.9 | 10349.3 | 10511.4 | 10845.8 | 11190.1 | 11319.8 | 11656.7 | 11674.1 | 11107.7 | 10159.6 |
| 40° | 10988.0 | 10988.0 | 10975.5 | 11135.2 | 11484.5 | 11831.3 | 11943.6 | 12138.2 | 12035.9 | 11651.7 | 10893.2 |
| 42.5° | 11599.3 | 11589.3 | 11599.3 | 11749.0 | 12008.4 | 12290.4 | 12387.7 | 12350.3 | 12220.5 | 12068.3 | 11556.9 |
| 45° | 12150.7 | 12158.1 | 12248.0 | 12362.7 | 12497.5 | 12664.6 | 12722.0 | 12509.9 | 12392.7 | 12402.7 | 12088.3 |
| 47.5° | 12524.9 | 12532.4 | 12742.0 | 12934.1 | 13016.4 | 13068.8 | 13043.9 | 12749.5 | 12689.6 | 12801.9 | 12497.5 |
| 50° | 12574.8 | 12614.7 | 12976.5 | 13370.7 | 13575.3 | 13582.8 | 13512.9 | 13153.7 | 13136.2 | 13263.4 | 12717.0 |
| 52.5° | 12584.8 | 12624.7 | 13076.3 | 13787.4 | 14318.8 | 14431.1 | 14351.3 | 13977.0 | 13794.9 | 13667.6 | 12986.5 |
| 55° | 12547.4 | 12592.3 | 13091.3 | 14066.8 | 15084.8 | 15533.9 | 15541.4 | 15012.4 | 14431.1 | 14346.3 | 13754.9 |
| 57.5° | 11077.8 | 11095.3 | 11868.7 | 13355.7 | 15054.8 | 16327.3 | 16424.6 | 15706.0 | 15042.4 | 14962.5 | 14371.2 |
| 60° | 7717.0 | 7786.9 | 8627.7 | 10591.3 | 12647.2 | 14890.2 | 15204.5 | 14995.0 | 14550.9 | 13969.5 | 12330.3 |
| 62.5° | 3864.8 | 3924.6 | 4767.9 | 6624.2 | 8722.5 | 10494.0 | 10830.8 | 11052.9 | 11157.7 | 10533.9 | 8395.7 |
| 65° | 1664.2 | 1709.1 | 2233.0 | 3460.6 | 4937.6 | 5793.4 | 5910.7 | 6177.6 | 6831.3 | 6095.3 | 4523.4 |
| 67.5° | 1112.8 | 1142.7 | 1409.7 | 2110.8 | 2909.2 | 2964.1 | 2946.6 | 3004.0 | 3146.2 | 2597.3 | 2043.4 |
| 70° | 853.3 | 878.2 | 1057.9 | 1546.9 | 2090.8 | 1788.9 | 1694.1 | 1536.9 | 1669.2 | 1701.6 | 1656.7 |
| 72.5° | 618.8 | 638.7 | 773.5 | 1055.4 | 1309.9 | 1142.7 | 1127.7 | 1207.6 | 1387.2 | 1437.1 | 1409.7 |
| 75° | 399.2 | 409.2 | 491.5 | 578.8 | 676.1 | 733.5 | 763.5 | 908.2 | 1090.3 | 1127.7 | 1095.3 |
| 77.5° | 267.0 | 274.5 | 321.9 | 371.8 | 384.2 | 386.7 | 396.7 | 461.6 | 586.3 | 656.2 | 648.7 |
| 80° | 139.7 | 139.7 | 157.2 | 157.2 | 179.6 | 214.6 | 224.6 | 267.0 | 324.4 | 359.3 | 361.8 |
| 82.5° | 54.9 | 57.4 | 67.4 | 74.9 | 89.8 | 109.8 | 117.3 | 139.7 | 169.7 | 194.6 | 217.1 |
| 85° | 22.5 | 25.0 | 27.4 | 32.4 | 39.9 | 49.9 | 52.4 | 59.9 | 79.8 | 99.8 | 112.3 |
| 87.5° | 0.0 | 0.0 | 2.5 | 2.5 | 5.0 | 7.5 | 7.5 | 10.0 | 12.5 | 22.5 | 29.9 |
| 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: P638827

CATALOG NUMBER: GWS-SA4F-750-U-T3-W-GRSWH

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 5509.0 | 5509.0 | 5509.0 | 5509.0 | 5509.0 | 5509.0 | 5509.0 | 5509.0 | 5509.0 | 5509.0 | 5509.0 |
| 2.5° | 5526.4 | 5494.0 | 5526.4 | 5536.4 | 5563.9 | 5573.8 | 5556.4 | 5553.9 | 5553.9 | 5528.9 | 5521.4 |
| 5° | 5563.9 | 5533.9 | 5566.4 | 5581.3 | 5621.2 | 5646.2 | 5651.2 | 5671.1 | 5683.6 | 5673.6 | 5671.1 |
| 7.5° | 5656.2 | 5618.7 | 5653.7 | 5676.1 | 5728.5 | 5768.4 | 5785.9 | 5830.8 | 5863.3 | 5858.3 | 5855.8 |
| 10° | 5818.3 | 5768.4 | 5808.4 | 5845.8 | 5903.2 | 5950.6 | 5953.1 | 5978.0 | 6010.5 | 6000.5 | 5995.5 |
| 12.5° | 6005.5 | 5958.1 | 6003.0 | 6040.4 | 6107.8 | 6127.7 | 6095.3 | 6085.3 | 6090.3 | 6077.8 | 6067.8 |
| 15° | 6235.0 | 6167.6 | 6207.6 | 6250.0 | 6287.4 | 6265.0 | 6195.1 | 6167.6 | 6165.2 | 6147.7 | 6137.7 |
| 17.5° | 6464.6 | 6379.7 | 6409.7 | 6432.1 | 6414.7 | 6344.8 | 6257.5 | 6210.1 | 6187.6 | 6152.7 | 6142.7 |
| 20° | 6691.6 | 6584.3 | 6579.3 | 6561.9 | 6482.0 | 6354.8 | 6237.5 | 6142.7 | 6085.3 | 6037.9 | 6020.4 |
| 22.5° | 6951.1 | 6801.4 | 6726.5 | 6646.7 | 6472.0 | 6265.0 | 6087.8 | 5953.1 | 5860.8 | 5800.9 | 5780.9 |
| 25° | 7230.5 | 7018.4 | 6863.8 | 6704.1 | 6372.2 | 6072.8 | 5825.8 | 5641.2 | 5531.4 | 5466.5 | 5444.1 |
| 27.5° | 7507.5 | 7215.5 | 6983.5 | 6711.6 | 6172.6 | 5795.9 | 5464.1 | 5214.6 | 5104.8 | 5052.4 | 5034.9 |
| 30° | 7881.7 | 7477.5 | 7125.7 | 6614.3 | 5910.7 | 5411.7 | 4997.5 | 4745.5 | 4673.1 | 4635.7 | 4620.7 |
| 32.5° | 8313.3 | 7809.4 | 7315.3 | 6409.7 | 5576.3 | 4962.6 | 4525.9 | 4351.3 | 4301.4 | 4229.0 | 4226.5 |
| 35° | 8882.2 | 8283.4 | 7495.0 | 6107.8 | 5154.7 | 4481.0 | 4164.2 | 4039.4 | 3949.6 | 3834.8 | 3824.8 |
| 37.5° | 9545.9 | 8874.7 | 7592.3 | 5723.5 | 4663.2 | 4084.3 | 3894.7 | 3755.0 | 3610.3 | 3458.1 | 3438.1 |
| 40° | 10232.0 | 9565.8 | 7599.8 | 5269.4 | 4181.6 | 3822.3 | 3662.7 | 3480.5 | 3300.9 | 3131.2 | 3108.8 |
| 42.5° | 10953.1 | 10209.5 | 7467.5 | 4745.5 | 3787.4 | 3595.3 | 3433.1 | 3203.6 | 3001.5 | 2886.7 | 2874.2 |
| 45° | 11596.8 | 10728.5 | 7168.1 | 4194.1 | 3495.5 | 3405.7 | 3198.6 | 2951.6 | 2844.3 | 2762.0 | 2744.5 |
| 47.5° | 12103.3 | 11072.8 | 6764.0 | 3700.1 | 3258.5 | 3211.1 | 2941.6 | 2814.4 | 2732.0 | 2657.2 | 2639.7 |
| 50° | 12352.8 | 11150.2 | 6237.5 | 3298.4 | 3038.9 | 2981.5 | 2796.9 | 2699.6 | 2644.7 | 2584.8 | 2569.9 |
| 52.5° | 12662.1 | 11237.5 | 5783.4 | 2961.6 | 2824.3 | 2747.0 | 2677.1 | 2599.8 | 2559.9 | 2522.4 | 2510.0 |
| 55° | 13373.2 | 11566.8 | 5543.9 | 2692.1 | 2619.8 | 2584.8 | 2574.8 | 2510.0 | 2497.5 | 2472.5 | 2450.1 |
| 57.5° | 13662.6 | 11354.8 | 4977.5 | 2472.5 | 2457.6 | 2462.6 | 2487.5 | 2427.6 | 2415.2 | 2385.2 | 2370.3 |
| 60° | 10988.0 | 8582.8 | 3370.7 | 2282.9 | 2322.8 | 2355.3 | 2380.2 | 2320.4 | 2302.9 | 2297.9 | 2277.9 |
| 62.5° | 7040.9 | 5279.4 | 2352.8 | 2105.8 | 2165.7 | 2205.6 | 2220.6 | 2163.2 | 2150.7 | 2190.6 | 2193.1 |
| 65° | 3665.2 | 2876.7 | 1908.7 | 1916.2 | 1966.1 | 2025.9 | 2055.9 | 2035.9 | 2030.9 | 2073.3 | 2075.8 |
| 67.5° | 1871.3 | 1759.0 | 1664.2 | 1691.6 | 1731.5 | 1808.9 | 1878.7 | 1966.1 | 1996.0 | 2001.0 | 2003.5 |
| 70° | 1594.3 | 1544.4 | 1497.0 | 1514.5 | 1556.9 | 1599.3 | 1666.7 | 1709.1 | 1659.2 | 1646.7 | 1641.7 |
| 72.5° | 1357.3 | 1319.9 | 1297.4 | 1317.4 | 1339.8 | 1332.3 | 1312.4 | 1332.3 | 1339.8 | 1342.3 | 1344.8 |
| 75° | 1055.4 | 1027.9 | 1010.5 | 1013.0 | 1013.0 | 985.5 | 948.1 | 925.6 | 900.7 | 880.7 | 880.7 |
| 77.5° | 646.2 | 651.2 | 668.7 | 666.2 | 663.7 | 653.7 | 616.3 | 596.3 | 536.4 | 519.0 | 519.0 |
| 80° | 369.3 | 376.7 | 394.2 | 399.2 | 399.2 | 386.7 | 349.3 | 326.8 | 299.4 | 286.9 | 284.4 |
| 82.5° | 224.6 | 234.5 | 244.5 | 249.5 | 252.0 | 237.0 | 204.6 | 187.1 | 172.2 | 159.7 | 159.7 |
| 85° | 117.3 | 122.3 | 132.2 | 134.7 | 127.2 | 112.3 | 94.8 | 87.3 | 72.4 | 69.9 | 69.9 |
| 87.5° | 32.4 | 34.9 | 39.9 | 32.4 | 29.9 | 22.5 | 12.5 | 10.0 | 5.0 | 2.5 | 2.5 |
| 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: SP1-1908-441-4-R4

Test Date: 10/02/2019

Luminaire Tested: SA1C-750-U-5WQ

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

Test Information

Test Method: LM-79-2008
 Report Number: SP1-1908-441-4-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-750-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): 4884
 CIE u': 0.2101
 CIE v': 0.4904
 Duv: 0.0037
 CIE x: 0.3493
 CIE y: 0.3624
 CIE z: 0.2884
 Peak Wavelength (nm): 444
 Dominant Wavelength (nm): 571
 Purity: 13.7
 Rf: 74.9
 Rg: 96.3

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 73.5 | | |
| R1: | 70.5 | R9: | -28.4 |
| R2: | 77.7 | R10: | 48.6 |
| R3: | 84.6 | R11: | 73.2 |
| R4: | 74.7 | R12: | 50.7 |
| R5: | 71.9 | R13: | 71.2 |
| R6: | 70.7 | R14: | 91.4 |
| R7: | 81.2 | | |
| R8: | 56.9 | | |



Test Conditions
 Stabilization Time: 240M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.0./44%
 Sphere Temperature (°C): 25.7

REPORT NUMBER: SP1-1908-441-4-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 |

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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 5000K 4-step quadrangle

REPORT NUMBER: SP1-1908-441-4-R4

Photopic Flux vs. Wavelength



#####

| 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 | 2945 | NR | 490 | 37941 | NR | 620 | 88803 | NR | 750 | 3908 | NR | 880 | 2997 | NR |
| 365 | 2596 | NR | 495 | 48525 | NR | 625 | 80578 | NR | 755 | 3988 | NR | 885 | 2927 | NR |
| 370 | 2732 | NR | 500 | 60609 | NR | 630 | 73127 | NR | 760 | 3335 | NR | 890 | 2649 | NR |
| 375 | 2894 | NR | 505 | 72036 | NR | 635 | 66244 | NR | 765 | 3438 | NR | 895 | 2828 | NR |
| 380 | 2822 | NR | 510 | 82168 | NR | 640 | 59440 | NR | 770 | 3427 | NR | 900 | 1407 | NR |
| 385 | 2394 | NR | 515 | 90898 | NR | 645 | 52864 | NR | 775 | 2759 | NR | 905 | 2224 | NR |
| 390 | 2370 | NR | 520 | 97142 | NR | 650 | 47085 | NR | 780 | 2340 | NR | 910 | 2905 | NR |
| 395 | 2267 | NR | 525 | 103255 | NR | 655 | 41789 | NR | 785 | 2412 | NR | 915 | 3350 | NR |
| 400 | 2262 | NR | 530 | 106697 | NR | 660 | 37064 | NR | 790 | 1999 | NR | 920 | 3114 | NR |
| 405 | 3000 | NR | 535 | 110081 | NR | 665 | 32299 | NR | 795 | 2054 | NR | 925 | 2834 | NR |
| 410 | 5324 | NR | 540 | 112494 | NR | 670 | 28142 | NR | 800 | 2331 | NR | 930 | 2271 | NR |
| 415 | 10725 | NR | 545 | 115513 | NR | 675 | 24505 | NR | 805 | 2648 | NR | 935 | 2228 | NR |
| 420 | 22128 | NR | 550 | 117203 | NR | 680 | 21162 | NR | 810 | 2485 | NR | 940 | 2833 | NR |
| 425 | 44095 | NR | 555 | 119753 | NR | 685 | 18400 | NR | 815 | 2409 | NR | 945 | 2941 | NR |
| 430 | 77002 | NR | 560 | 122602 | NR | 690 | 16065 | NR | 820 | 2221 | NR | 950 | 2323 | NR |
| 435 | 119881 | NR | 565 | 124314 | NR | 695 | 13860 | NR | 825 | 1562 | NR | 955 | 1667 | NR |
| 440 | 164454 | NR | 570 | 126775 | NR | 700 | 12177 | NR | 830 | 2249 | NR | 960 | 749 | NR |
| 445 | 179997 | NR | 575 | 127511 | NR | 705 | 10757 | NR | 835 | 2573 | NR | 965 | 2669 | NR |
| 450 | 142822 | NR | 580 | 127577 | NR | 710 | 9601 | NR | 840 | 2764 | NR | 970 | 3968 | NR |
| 455 | 90008 | NR | 585 | 126153 | NR | 715 | 8944 | NR | 845 | 3109 | NR | 975 | 3886 | NR |
| 460 | 60557 | NR | 590 | 123678 | NR | 720 | 7947 | NR | 850 | 2963 | NR | 980 | 2788 | NR |
| 465 | 43305 | NR | 595 | 119774 | NR | 725 | 7062 | NR | 855 | 2336 | NR | 985 | 3496 | NR |
| 470 | 31089 | NR | 600 | 115733 | NR | 730 | 6004 | NR | 860 | 2118 | NR | 990 | 2913 | NR |
| 475 | 26278 | NR | 605 | 109231 | NR | 735 | 5594 | NR | 865 | 3144 | NR | 995 | 4659 | NR |
| 480 | 27060 | NR | 610 | 102408 | NR | 740 | 5165 | NR | 870 | 3069 | NR | 1000 | 1308 | NR |
| 485 | 30698 | NR | 615 | 96015 | NR | 745 | 4687 | NR | 875 | 3311 | NR | | | |

REPORT NUMBER: SP1-1908-441-4-R4

Scotopic Flux vs. Wavelength



Scotopic Lumens: 13493.5 S/P: 1.77

| 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 | 2945 | NR | 490 | 37941 | NR | 620 | 88803 | NR | 750 | 3908 | NR | 880 | 2997 | NR |
| 365 | 2596 | NR | 495 | 48525 | NR | 625 | 80578 | NR | 755 | 3988 | NR | 885 | 2927 | NR |
| 370 | 2732 | NR | 500 | 60609 | NR | 630 | 73127 | NR | 760 | 3335 | NR | 890 | 2649 | NR |
| 375 | 2894 | NR | 505 | 72036 | NR | 635 | 66244 | NR | 765 | 3438 | NR | 895 | 2828 | NR |
| 380 | 2822 | NR | 510 | 82168 | NR | 640 | 59440 | NR | 770 | 3427 | NR | 900 | 1407 | NR |
| 385 | 2394 | NR | 515 | 90898 | NR | 645 | 52864 | NR | 775 | 2759 | NR | 905 | 2224 | NR |
| 390 | 2370 | NR | 520 | 97142 | NR | 650 | 47085 | NR | 780 | 2340 | NR | 910 | 2905 | NR |
| 395 | 2267 | NR | 525 | 103255 | NR | 655 | 41789 | NR | 785 | 2412 | NR | 915 | 3350 | NR |
| 400 | 2262 | NR | 530 | 106697 | NR | 660 | 37064 | NR | 790 | 1999 | NR | 920 | 3114 | NR |
| 405 | 3000 | NR | 535 | 110081 | NR | 665 | 32299 | NR | 795 | 2054 | NR | 925 | 2834 | NR |
| 410 | 5324 | NR | 540 | 112494 | NR | 670 | 28142 | NR | 800 | 2331 | NR | 930 | 2271 | NR |
| 415 | 10725 | NR | 545 | 115513 | NR | 675 | 24505 | NR | 805 | 2648 | NR | 935 | 2228 | NR |
| 420 | 22128 | NR | 550 | 117203 | NR | 680 | 21162 | NR | 810 | 2485 | NR | 940 | 2833 | NR |
| 425 | 44095 | NR | 555 | 119753 | NR | 685 | 18400 | NR | 815 | 2409 | NR | 945 | 2941 | NR |
| 430 | 77002 | NR | 560 | 122602 | NR | 690 | 16065 | NR | 820 | 2221 | NR | 950 | 2323 | NR |
| 435 | 119881 | NR | 565 | 124314 | NR | 695 | 13860 | NR | 825 | 1562 | NR | 955 | 1667 | NR |
| 440 | 164454 | NR | 570 | 126775 | NR | 700 | 12177 | NR | 830 | 2249 | NR | 960 | 749 | NR |
| 445 | 179997 | NR | 575 | 127511 | NR | 705 | 10757 | NR | 835 | 2573 | NR | 965 | 2669 | NR |
| 450 | 142822 | NR | 580 | 127577 | NR | 710 | 9601 | NR | 840 | 2764 | NR | 970 | 3968 | NR |
| 455 | 90008 | NR | 585 | 126153 | NR | 715 | 8944 | NR | 845 | 3109 | NR | 975 | 3886 | NR |
| 460 | 60557 | NR | 590 | 123678 | NR | 720 | 7947 | NR | 850 | 2963 | NR | 980 | 2788 | NR |
| 465 | 43305 | NR | 595 | 119774 | NR | 725 | 7062 | NR | 855 | 2336 | NR | 985 | 3496 | NR |
| 470 | 31089 | NR | 600 | 115733 | NR | 730 | 6004 | NR | 860 | 2118 | NR | 990 | 2913 | NR |
| 475 | 26278 | NR | 605 | 109231 | NR | 735 | 5594 | NR | 865 | 3144 | NR | 995 | 4659 | NR |
| 480 | 27060 | NR | 610 | 102408 | NR | 740 | 5165 | NR | 870 | 3069 | NR | 1000 | 1308 | NR |
| 485 | 30698 | NR | 615 | 96015 | NR | 745 | 4687 | NR | 875 | 3311 | NR | | | |

REPORT NUMBER: SP1-1908-441-4-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 5378.9

M/P: 0.71

| 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 | 2945 | NR | 490 | 37941 | NR | 620 | 88803 | NR | 750 | 3908 | NR | 880 | 2997 | NR |
| 365 | 2596 | NR | 495 | 48525 | NR | 625 | 80578 | NR | 755 | 3988 | NR | 885 | 2927 | NR |
| 370 | 2732 | NR | 500 | 60609 | NR | 630 | 73127 | NR | 760 | 3335 | NR | 890 | 2649 | NR |
| 375 | 2894 | NR | 505 | 72036 | NR | 635 | 66244 | NR | 765 | 3438 | NR | 895 | 2828 | NR |
| 380 | 2822 | NR | 510 | 82168 | NR | 640 | 59440 | NR | 770 | 3427 | NR | 900 | 1407 | NR |
| 385 | 2394 | NR | 515 | 90898 | NR | 645 | 52864 | NR | 775 | 2759 | NR | 905 | 2224 | NR |
| 390 | 2370 | NR | 520 | 97142 | NR | 650 | 47085 | NR | 780 | 2340 | NR | 910 | 2905 | NR |
| 395 | 2267 | NR | 525 | 103255 | NR | 655 | 41789 | NR | 785 | 2412 | NR | 915 | 3350 | NR |
| 400 | 2262 | NR | 530 | 106697 | NR | 660 | 37064 | NR | 790 | 1999 | NR | 920 | 3114 | NR |
| 405 | 3000 | NR | 535 | 110081 | NR | 665 | 32299 | NR | 795 | 2054 | NR | 925 | 2834 | NR |
| 410 | 5324 | NR | 540 | 112494 | NR | 670 | 28142 | NR | 800 | 2331 | NR | 930 | 2271 | NR |
| 415 | 10725 | NR | 545 | 115513 | NR | 675 | 24505 | NR | 805 | 2648 | NR | 935 | 2228 | NR |
| 420 | 22128 | NR | 550 | 117203 | NR | 680 | 21162 | NR | 810 | 2485 | NR | 940 | 2833 | NR |
| 425 | 44095 | NR | 555 | 119753 | NR | 685 | 18400 | NR | 815 | 2409 | NR | 945 | 2941 | NR |
| 430 | 77002 | NR | 560 | 122602 | NR | 690 | 16065 | NR | 820 | 2221 | NR | 950 | 2323 | NR |
| 435 | 119881 | NR | 565 | 124314 | NR | 695 | 13860 | NR | 825 | 1562 | NR | 955 | 1667 | NR |
| 440 | 164454 | NR | 570 | 126775 | NR | 700 | 12177 | NR | 830 | 2249 | NR | 960 | 749 | NR |
| 445 | 179997 | NR | 575 | 127511 | NR | 705 | 10757 | NR | 835 | 2573 | NR | 965 | 2669 | NR |
| 450 | 142822 | NR | 580 | 127577 | NR | 710 | 9601 | NR | 840 | 2764 | NR | 970 | 3968 | NR |
| 455 | 90008 | NR | 585 | 126153 | NR | 715 | 8944 | NR | 845 | 3109 | NR | 975 | 3886 | NR |
| 460 | 60557 | NR | 590 | 123678 | NR | 720 | 7947 | NR | 850 | 2963 | NR | 980 | 2788 | NR |
| 465 | 43305 | NR | 595 | 119774 | NR | 725 | 7062 | NR | 855 | 2336 | NR | 985 | 3496 | NR |
| 470 | 31089 | NR | 600 | 115733 | NR | 730 | 6004 | NR | 860 | 2118 | NR | 990 | 2913 | NR |
| 475 | 26278 | NR | 605 | 109231 | NR | 735 | 5594 | NR | 865 | 3144 | NR | 995 | 4659 | NR |
| 480 | 27060 | NR | 610 | 102408 | NR | 740 | 5165 | NR | 870 | 3069 | NR | 1000 | 1308 | NR |
| 485 | 30698 | NR | 615 | 96015 | NR | 745 | 4687 | NR | 875 | 3311 | NR | | | |

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TM-30-18

Summary

$R_f = 74.9$
 $R_g = 96.3$
 $CIE R_a = 73.5$
 $R_g = -28.4$



Color Vector Graphics



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

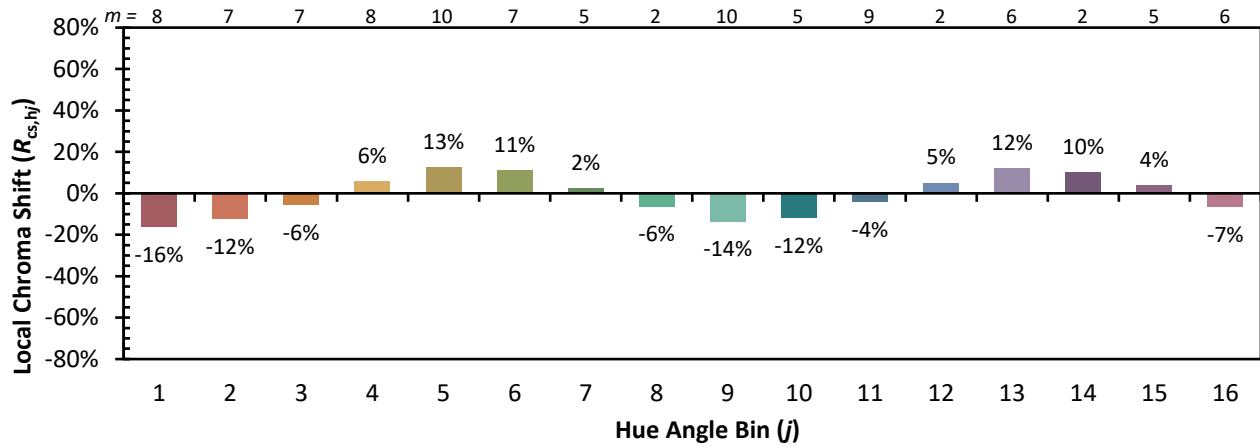
| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 61 | CES51 = 90 | CES76 = 52 |
| CES02 = 60 | CES27 = 84 | CES52 = 91 | CES77 = 71 |
| CES03 = 30 | CES28 = 81 | CES53 = 79 | CES78 = 54 |
| CES04 = 69 | CES29 = 58 | CES54 = 83 | CES79 = 80 |
| CES05 = 46 | CES30 = 67 | CES55 = 83 | CES80 = 77 |
| CES06 = 50 | CES31 = 63 | CES56 = 73 | CES81 = 77 |
| CES07 = 39 | CES32 = 59 | CES57 = 72 | CES82 = 90 |
| CES08 = 38 | CES33 = 69 | CES58 = 73 | CES83 = 86 |
| CES09 = 29 | CES34 = 69 | CES59 = 88 | CES84 = 88 |
| CES10 = 73 | CES35 = 83 | CES60 = 93 | CES85 = 84 |
| CES11 = 56 | CES36 = 95 | CES61 = 88 | CES86 = 75 |
| CES12 = 61 | CES37 = 78 | CES62 = 85 | CES87 = 78 |
| CES13 = 41 | CES38 = 76 | CES63 = 77 | CES88 = 79 |
| CES14 = 74 | CES39 = 93 | CES64 = 74 | CES89 = 75 |
| CES15 = 70 | CES40 = 86 | CES65 = 67 | CES90 = 77 |
| CES16 = 46 | CES41 = 87 | CES66 = 69 | CES91 = 89 |
| CES17 = 49 | CES42 = 78 | CES67 = 67 | CES92 = 66 |
| CES18 = 55 | CES43 = 75 | CES68 = 73 | CES93 = 80 |
| CES19 = 71 | CES44 = 99 | CES69 = 81 | CES94 = 57 |
| CES20 = 64 | CES45 = 83 | CES70 = 63 | CES95 = 71 |
| CES21 = 85 | CES46 = 81 | CES71 = 60 | CES96 = 78 |
| CES22 = 77 | CES47 = 80 | CES72 = 86 | CES97 = 85 |
| CES23 = 91 | CES48 = 72 | CES73 = 53 | CES98 = 75 |
| CES24 = 90 | CES49 = 81 | CES74 = 96 | CES99 = 62 |
| CES25 = 71 | CES50 = 89 | CES75 = 58 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)