

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: P637401

Luminaire Tested: GWS-SA4C-760-U-T3R-W-GRSWH

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P637401
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-17)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA4C-760-U-T3R-W-GRSWH
Description: GALLEON WALL SLIM LUMINAIRE. (4) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III ROADWAY OPTICS W/ FACTORY INSTALLED GLARE SHIELD, WH
Light Source: (64) 5700K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 17170.2 lumens
Efficiency: N/A
Efficacy: 133.6 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type II - Short
BUG Rating: B3 - U0 - G2

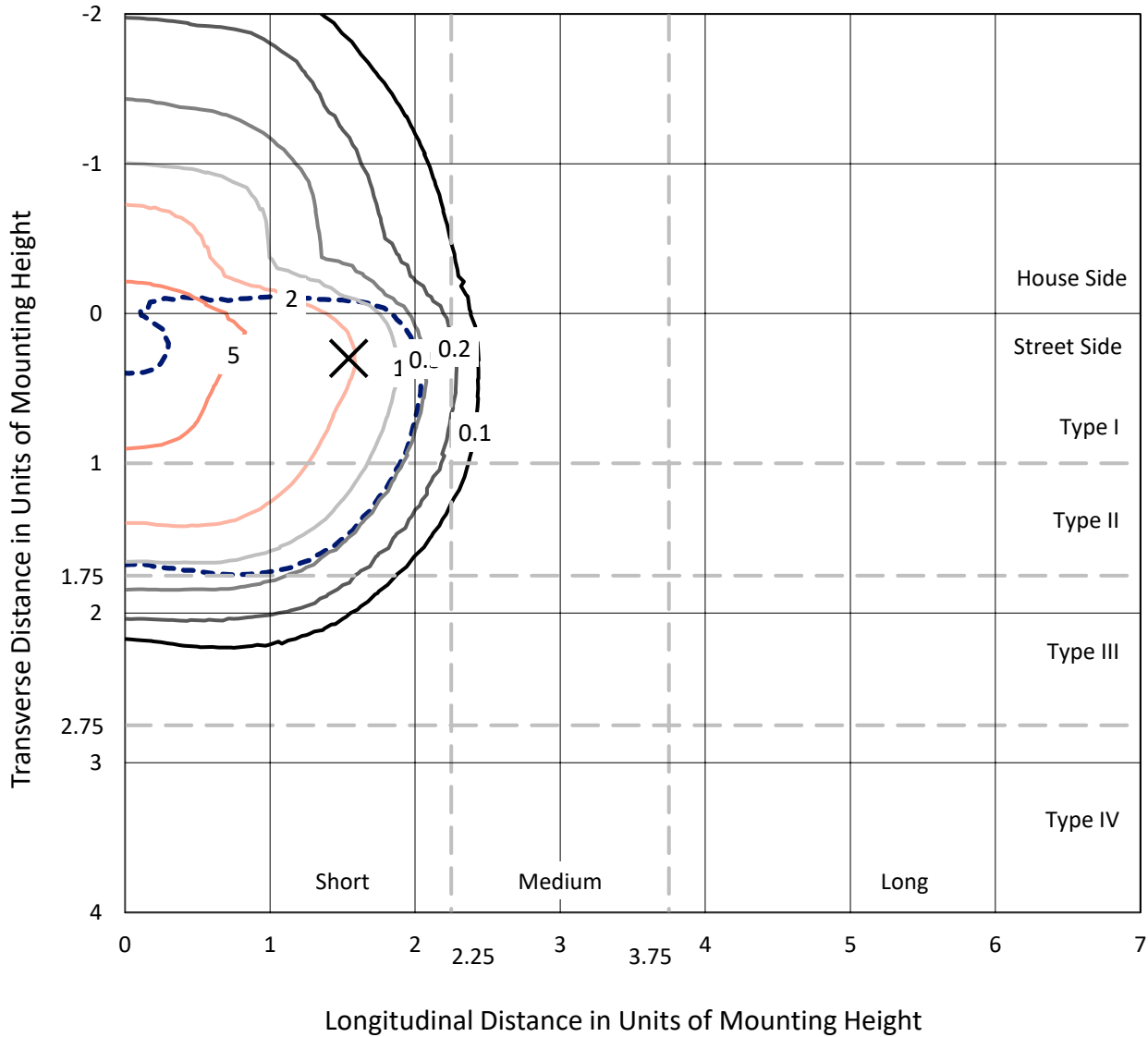
Input Watts (W): 128.5
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

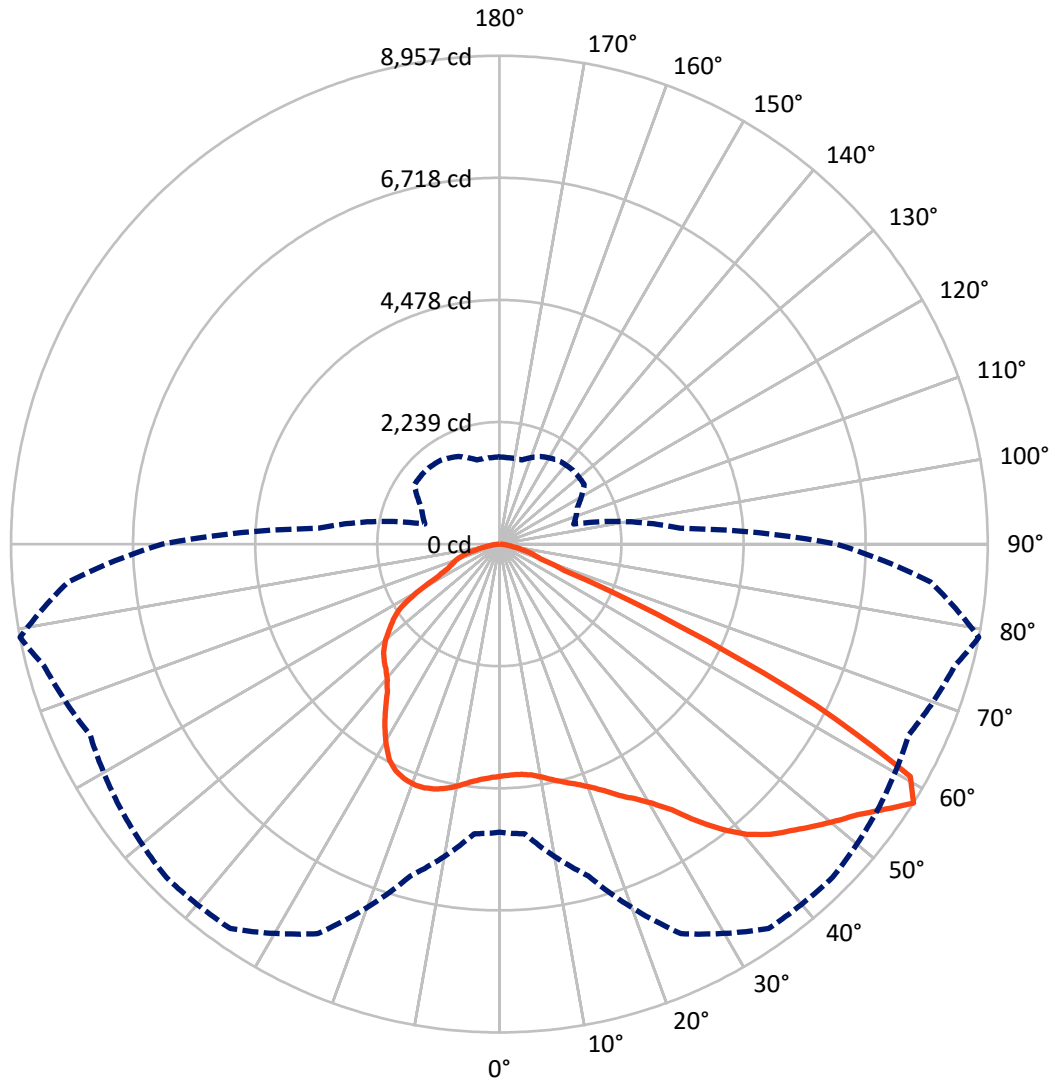
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 6.9 fc
 Type II - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 79-Deg Lateral - - - Horizontal Cone Through 57.5-Deg Vertical

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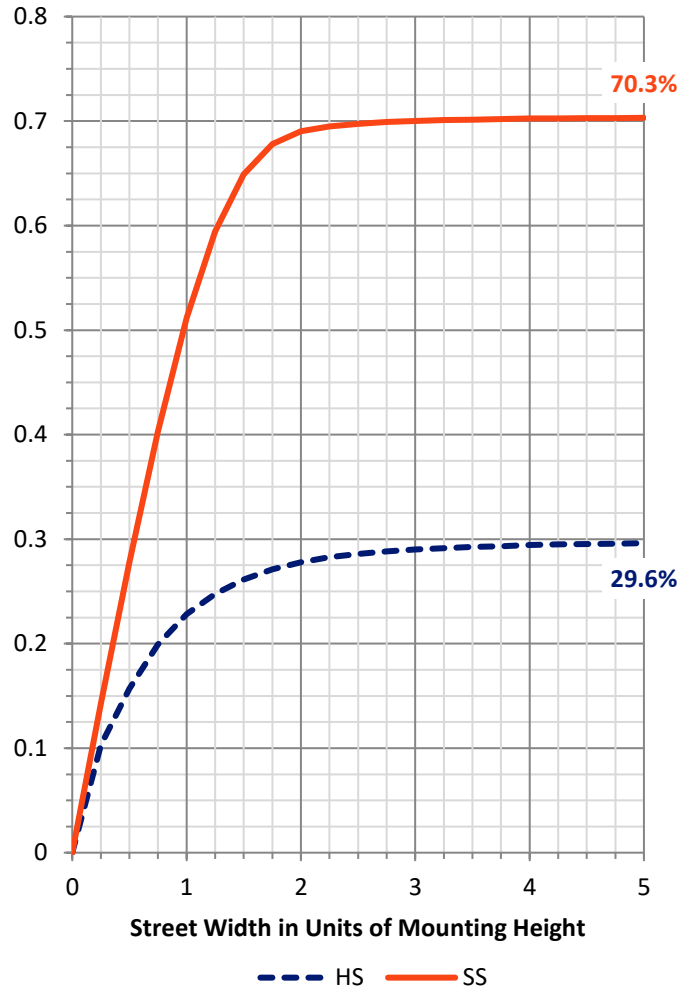
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 5103.9 | 0.0 | 5103.9 |
| | % Fixture | 29.7 | 0.0 | 29.7 |
| Street Side | Lumens | 12066.3 | 0.0 | 12066.3 |
| | % Fixture | 70.3 | 0.0 | 70.3 |
| Total | Lumens | 17170.2 | 0.0 | 17170.2 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 394.1 | 2.3 |
| 10°-20° | 1095.1 | 6.4 |
| 20°-30° | 1856.3 | 10.8 |
| 30°-40° | 2841.2 | 16.5 |
| 40°-50° | 3788.5 | 22.1 |
| 50°-60° | 4375.5 | 25.5 |
| 60°-70° | 2273.6 | 13.2 |
| 70°-80° | 483.3 | 2.8 |
| 80°-90° | 62.6 | 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° | 17170.2 | 100.0 |
| 0°-180° | 17170.2 | 100.0 |

Coefficient of Utilization



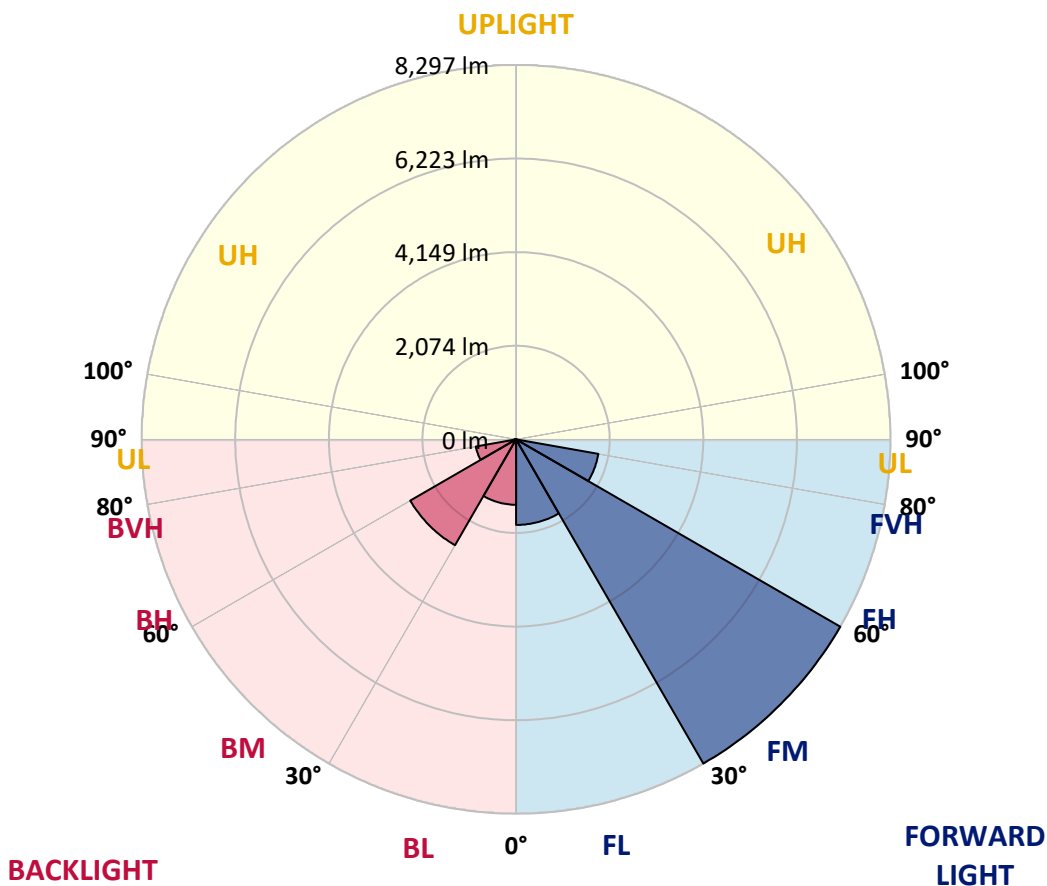
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1896.0 | 11.0 | | | |
| FM (30°-60°) | 8297.1 | 48.3 | | | |
| FH (60°-80°) | 1851.4 | 10.8 | | | G2/5000 |
| FVH (80°-90°) | 21.8 | 0.1 | | | G1/100 |
| BL (0°-30°) | 1449.5 | 8.4 | B3/2500 | | |
| BM (30°-60°) | 2708.1 | 15.8 | B3/5000 | | |
| BH (60°-80°) | 905.6 | 5.3 | B2/1000 | | G2/1000 |
| BVH (80°-90°) | 40.8 | 0.2 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B3-U0-G2
 Type II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 79° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 4255.2 | 4255.2 | 4255.2 | 4255.2 | 4255.2 | 4255.2 | 4255.2 | 4255.2 | 4255.2 | 4255.2 | 4255.2 |
| 2.5° | 4061.4 | 4053.0 | 4055.8 | 4067.1 | 4109.2 | 4140.1 | 4172.3 | 4201.8 | 4229.9 | 4238.3 | 4245.3 |
| 5° | 3916.8 | 3901.4 | 3905.6 | 3923.9 | 3973.0 | 4024.9 | 4082.5 | 4152.7 | 4220.1 | 4242.5 | 4272.0 |
| 7.5° | 3814.4 | 3811.5 | 3818.6 | 3846.6 | 3898.6 | 3947.7 | 4022.1 | 4121.8 | 4238.3 | 4276.2 | 4328.2 |
| 10° | 3678.2 | 3672.6 | 3700.6 | 3758.2 | 3843.8 | 3922.5 | 4010.9 | 4128.8 | 4291.7 | 4347.8 | 4427.9 |
| 12.5° | 3570.1 | 3567.3 | 3596.8 | 3676.8 | 3786.3 | 3911.2 | 4033.4 | 4165.3 | 4363.3 | 4440.5 | 4538.8 |
| 15° | 3633.3 | 3620.6 | 3622.0 | 3678.2 | 3776.4 | 3923.9 | 4089.5 | 4231.3 | 4434.9 | 4533.1 | 4659.5 |
| 17.5° | 3817.2 | 3794.7 | 3777.9 | 3787.7 | 3843.8 | 3996.9 | 4175.2 | 4319.8 | 4517.7 | 4632.8 | 4787.2 |
| 20° | 4071.3 | 4058.6 | 4012.3 | 3981.4 | 3994.1 | 4128.8 | 4309.9 | 4444.7 | 4625.8 | 4755.0 | 4920.6 |
| 22.5° | 4412.4 | 4381.5 | 4318.3 | 4269.2 | 4231.3 | 4336.6 | 4503.7 | 4620.2 | 4776.0 | 4910.8 | 5083.5 |
| 25° | 4835.0 | 4790.1 | 4690.4 | 4613.2 | 4531.7 | 4639.8 | 4788.6 | 4877.1 | 4982.4 | 5107.3 | 5271.6 |
| 27.5° | 5266.0 | 5228.1 | 5117.2 | 5013.3 | 4912.2 | 4979.6 | 5156.5 | 5207.0 | 5195.8 | 5287.0 | 5427.4 |
| 30° | 5725.0 | 5677.3 | 5572.0 | 5459.7 | 5329.1 | 5372.7 | 5531.3 | 5556.6 | 5437.2 | 5513.1 | 5608.5 |
| 32.5° | 6209.4 | 6163.1 | 6071.8 | 5941.2 | 5793.8 | 5810.7 | 5854.2 | 5878.1 | 5764.3 | 5807.9 | 5880.9 |
| 35° | 6702.1 | 6658.6 | 6566.0 | 6436.8 | 6328.7 | 6226.2 | 6116.7 | 6212.2 | 6146.2 | 6230.4 | 6224.8 |
| 37.5° | 7152.8 | 7109.3 | 7051.7 | 6952.0 | 6766.7 | 6564.6 | 6311.9 | 6429.8 | 6532.3 | 6639.0 | 6620.7 |
| 40° | 7457.4 | 7428.0 | 7442.0 | 7426.5 | 7187.9 | 6787.8 | 6407.3 | 6536.5 | 6815.9 | 6998.4 | 6988.5 |
| 42.5° | 7720.0 | 7690.5 | 7771.9 | 7830.9 | 7550.1 | 6994.2 | 6453.7 | 6577.2 | 6997.0 | 7281.9 | 7267.9 |
| 45° | 7836.5 | 7828.1 | 7962.8 | 8149.5 | 7881.4 | 7213.2 | 6573.0 | 6661.4 | 7134.5 | 7499.5 | 7446.2 |
| 47.5° | 7697.5 | 7727.0 | 7992.3 | 8308.2 | 8156.6 | 7472.9 | 6817.3 | 6839.7 | 7314.2 | 7735.4 | 7585.2 |
| 50° | 7420.9 | 7485.5 | 7843.5 | 8312.4 | 8357.3 | 7766.3 | 7155.6 | 7099.4 | 7555.7 | 7986.7 | 7658.2 |
| 52.5° | 7018.0 | 7085.4 | 7669.4 | 8280.1 | 8472.4 | 8106.0 | 7606.2 | 7526.2 | 7860.3 | 8238.0 | 7670.8 |
| 55° | 6092.9 | 6184.1 | 7270.7 | 8207.1 | 8584.8 | 8414.9 | 8114.4 | 7951.6 | 8253.4 | 8583.3 | 7795.8 |
| 57.5° | 5285.6 | 5333.4 | 6299.2 | 7882.8 | 8607.2 | 8642.3 | 8476.7 | 8282.9 | 8643.7 | 8956.8 | 7936.2 |
| 60° | 3878.9 | 3890.2 | 4759.2 | 6522.4 | 7917.9 | 8510.3 | 8447.2 | 8159.4 | 8458.4 | 8657.8 | 7293.2 |
| 62.5° | 2191.5 | 2192.9 | 2886.4 | 4353.4 | 5914.6 | 6936.6 | 6975.9 | 6721.8 | 6470.5 | 6529.5 | 5076.4 |
| 65° | 822.7 | 899.9 | 1318.2 | 2139.5 | 3410.0 | 4095.1 | 4258.0 | 4316.9 | 3898.6 | 3638.9 | 2722.1 |
| 67.5° | 550.3 | 568.6 | 769.3 | 1100.6 | 1517.6 | 1752.0 | 1959.8 | 1965.4 | 1437.6 | 1281.7 | 1072.6 |
| 70° | 419.8 | 438.0 | 605.1 | 787.6 | 769.3 | 710.4 | 767.9 | 746.9 | 772.1 | 793.2 | 815.7 |
| 72.5° | 313.1 | 331.3 | 468.9 | 555.9 | 461.9 | 454.9 | 515.2 | 572.8 | 626.1 | 648.6 | 683.7 |
| 75° | 207.8 | 221.8 | 315.9 | 297.6 | 255.5 | 301.8 | 376.2 | 433.8 | 464.7 | 491.4 | 518.0 |
| 77.5° | 132.0 | 141.8 | 168.5 | 136.2 | 141.8 | 176.9 | 219.0 | 270.9 | 300.4 | 327.1 | 341.1 |
| 80° | 60.4 | 59.0 | 57.6 | 64.6 | 80.0 | 103.9 | 132.0 | 162.9 | 185.3 | 196.5 | 205.0 |
| 82.5° | 23.9 | 26.7 | 29.5 | 35.1 | 43.5 | 56.2 | 74.4 | 95.5 | 113.7 | 116.5 | 123.5 |
| 85° | 9.8 | 11.2 | 12.6 | 15.4 | 19.7 | 25.3 | 30.9 | 43.5 | 54.8 | 59.0 | 63.2 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 | 2.8 | 4.2 | 7.0 | 12.6 | 14.0 | 15.4 |
| 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: P637401

CATALOG NUMBER: GWS-SA4C-760-U-T3R-W-GRSWH

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 4255.2 | 4255.2 | 4255.2 | 4255.2 | 4255.2 | 4255.2 | 4255.2 | 4255.2 | 4255.2 | 4255.2 | 4255.2 |
| 2.5° | 4283.3 | 4265.0 | 4295.9 | 4316.9 | 4336.6 | 4315.5 | 4308.5 | 4290.3 | 4287.5 | 4287.5 | 4297.3 |
| 5° | 4322.6 | 4309.9 | 4342.2 | 4354.8 | 4353.4 | 4307.1 | 4279.0 | 4242.5 | 4224.3 | 4224.3 | 4227.1 |
| 7.5° | 4392.8 | 4385.7 | 4404.0 | 4384.3 | 4339.4 | 4245.3 | 4152.7 | 4075.5 | 4023.5 | 3996.9 | 4005.3 |
| 10° | 4509.3 | 4500.9 | 4485.4 | 4412.4 | 4283.3 | 4088.1 | 3898.6 | 3758.2 | 3674.0 | 3626.2 | 3629.0 |
| 12.5° | 4623.0 | 4609.0 | 4554.2 | 4392.8 | 4127.4 | 3817.2 | 3568.7 | 3411.4 | 3318.8 | 3262.6 | 3250.0 |
| 15° | 4747.9 | 4711.4 | 4593.5 | 4291.7 | 3873.3 | 3485.8 | 3226.1 | 3056.3 | 2956.6 | 2922.9 | 2921.5 |
| 17.5° | 4867.3 | 4802.7 | 4589.3 | 4112.0 | 3568.7 | 3139.1 | 2878.0 | 2772.7 | 2755.8 | 2771.3 | 2775.5 |
| 20° | 4988.0 | 4884.1 | 4543.0 | 3863.5 | 3206.5 | 2793.7 | 2659.0 | 2702.5 | 2765.7 | 2807.8 | 2817.6 |
| 22.5° | 5112.9 | 4951.5 | 4437.7 | 3543.4 | 2824.6 | 2560.7 | 2616.8 | 2712.3 | 2790.9 | 2847.1 | 2852.7 |
| 25° | 5253.3 | 5014.7 | 4280.4 | 3151.7 | 2518.6 | 2496.1 | 2607.0 | 2708.1 | 2792.3 | 2856.9 | 2868.1 |
| 27.5° | 5333.4 | 5016.1 | 4060.0 | 2748.8 | 2378.2 | 2470.8 | 2583.1 | 2678.6 | 2762.8 | 2833.0 | 2845.7 |
| 30° | 5412.0 | 4978.2 | 3710.5 | 2421.7 | 2337.5 | 2441.4 | 2542.4 | 2630.9 | 2710.9 | 2779.7 | 2795.1 |
| 32.5° | 5522.9 | 4943.1 | 3307.6 | 2233.6 | 2313.6 | 2413.3 | 2496.1 | 2574.7 | 2636.5 | 2667.4 | 2675.8 |
| 35° | 5660.5 | 4898.2 | 2879.4 | 2152.2 | 2298.2 | 2390.8 | 2463.8 | 2505.9 | 2425.9 | 2409.1 | 2427.3 |
| 37.5° | 5852.8 | 4856.0 | 2452.6 | 2117.1 | 2288.3 | 2382.4 | 2447.0 | 2338.9 | 2240.6 | 2201.3 | 2215.3 |
| 40° | 6060.6 | 4832.2 | 2163.4 | 2089.0 | 2292.5 | 2390.8 | 2376.8 | 2216.7 | 2074.9 | 1992.1 | 1989.3 |
| 42.5° | 6237.5 | 4795.7 | 1978.1 | 2070.7 | 2303.8 | 2423.1 | 2281.3 | 2108.6 | 1898.1 | 1848.9 | 1850.3 |
| 45° | 6356.8 | 4703.0 | 1879.8 | 2051.1 | 2313.6 | 2430.1 | 2236.4 | 1959.8 | 1809.6 | 1778.7 | 1777.3 |
| 47.5° | 6405.9 | 4534.5 | 1816.6 | 2020.2 | 2312.2 | 2372.6 | 2145.1 | 1898.1 | 1747.8 | 1739.4 | 1745.0 |
| 50° | 6373.6 | 4258.0 | 1752.0 | 1959.8 | 2278.5 | 2312.2 | 2039.8 | 1843.3 | 1705.7 | 1752.0 | 1785.7 |
| 52.5° | 6254.3 | 3900.0 | 1674.8 | 1877.0 | 2218.1 | 2243.4 | 1986.5 | 1809.6 | 1674.8 | 1736.6 | 1763.3 |
| 55° | 6223.4 | 3609.4 | 1576.6 | 1768.9 | 2128.3 | 2121.3 | 1930.3 | 1792.8 | 1653.8 | 1629.9 | 1634.1 |
| 57.5° | 6182.7 | 3325.8 | 1413.7 | 1575.2 | 1900.9 | 1912.1 | 1877.0 | 1773.1 | 1599.0 | 1592.0 | 1599.0 |
| 60° | 5371.3 | 2549.5 | 1260.7 | 1359.0 | 1561.1 | 1621.5 | 1816.6 | 1736.6 | 1510.6 | 1481.1 | 1479.7 |
| 62.5° | 3508.3 | 1544.3 | 1121.7 | 1184.9 | 1271.9 | 1342.1 | 1656.6 | 1631.3 | 1413.7 | 1395.5 | 1408.1 |
| 65° | 1886.8 | 1100.6 | 1020.6 | 1058.5 | 1106.3 | 1159.6 | 1373.0 | 1453.0 | 1277.5 | 1213.0 | 1214.4 |
| 67.5° | 964.5 | 936.4 | 944.8 | 971.5 | 1008.0 | 1034.7 | 1107.7 | 1177.9 | 1089.4 | 1034.7 | 1033.3 |
| 70° | 825.5 | 847.9 | 860.6 | 876.0 | 899.9 | 895.7 | 902.7 | 915.3 | 908.3 | 881.6 | 880.2 |
| 72.5° | 703.3 | 738.4 | 741.3 | 744.1 | 752.5 | 732.8 | 720.2 | 699.1 | 700.5 | 704.7 | 706.2 |
| 75° | 534.9 | 568.6 | 577.0 | 572.8 | 581.2 | 555.9 | 539.1 | 518.0 | 492.8 | 488.6 | 491.4 |
| 77.5° | 348.2 | 374.8 | 387.5 | 384.7 | 388.9 | 369.2 | 360.8 | 338.3 | 308.9 | 297.6 | 297.6 |
| 80° | 210.6 | 226.0 | 235.9 | 238.7 | 242.9 | 228.8 | 214.8 | 195.1 | 182.5 | 169.9 | 169.9 |
| 82.5° | 127.8 | 137.6 | 144.6 | 144.6 | 148.8 | 133.4 | 122.1 | 108.1 | 102.5 | 91.3 | 91.3 |
| 85° | 64.6 | 71.6 | 74.4 | 73.0 | 70.2 | 57.6 | 53.3 | 46.3 | 43.5 | 37.9 | 37.9 |
| 87.5° | 15.4 | 19.7 | 19.7 | 14.0 | 14.0 | 7.0 | 4.2 | 1.4 | 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
 CIE u': 0.2052
 CIE v': 0.4804
 Duv: 0.0025
 CIE x: 0.3330
 CIE y: 0.3466
 CIE z: 0.3204
 Peak Wavelength (nm): 442
 Dominant Wavelength (nm): 554
 Purity: 4.1

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 71.7 | | |
| R1: | 70.6 | R9: | -27.1 |
| R2: | 74.6 | R10: | 40.8 |
| R3: | 78.3 | R11: | 74.6 |
| R4: | 73.8 | R12: | 50.4 |
| R5: | 72.4 | R13: | 70.0 |
| R6: | 67.5 | R14: | 87.8 |
| R7: | 77.5 | | |
| R8: | 58.9 | | |

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

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| 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 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 | | | |

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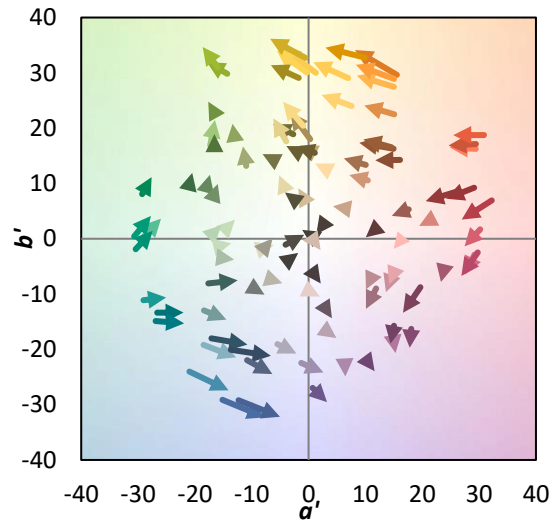
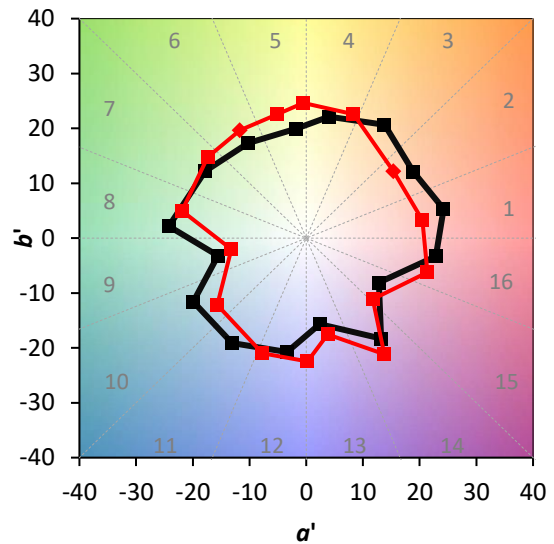
TM-30-18

Summary

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



Color Vector Graphics



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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 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)