

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: P318151

Luminaire Tested: **GLEON-SA7A-760-U-T2**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P318151
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-12)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: GLEON-SA7A-760-U-T2
Description: GALLEON AREA AND ROADWAY LUMINAIRE
(7) 70 CRI, 5700K, 615mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 32347 lumens
Efficiency: N/A
Efficacy: 143.1 lumens/watt
Luminous Opening: Rectangular (W 2' x L: 1' x H: 0')
IES Classification: Type III - Medium
BUG Rating: B3 - U0 - G4

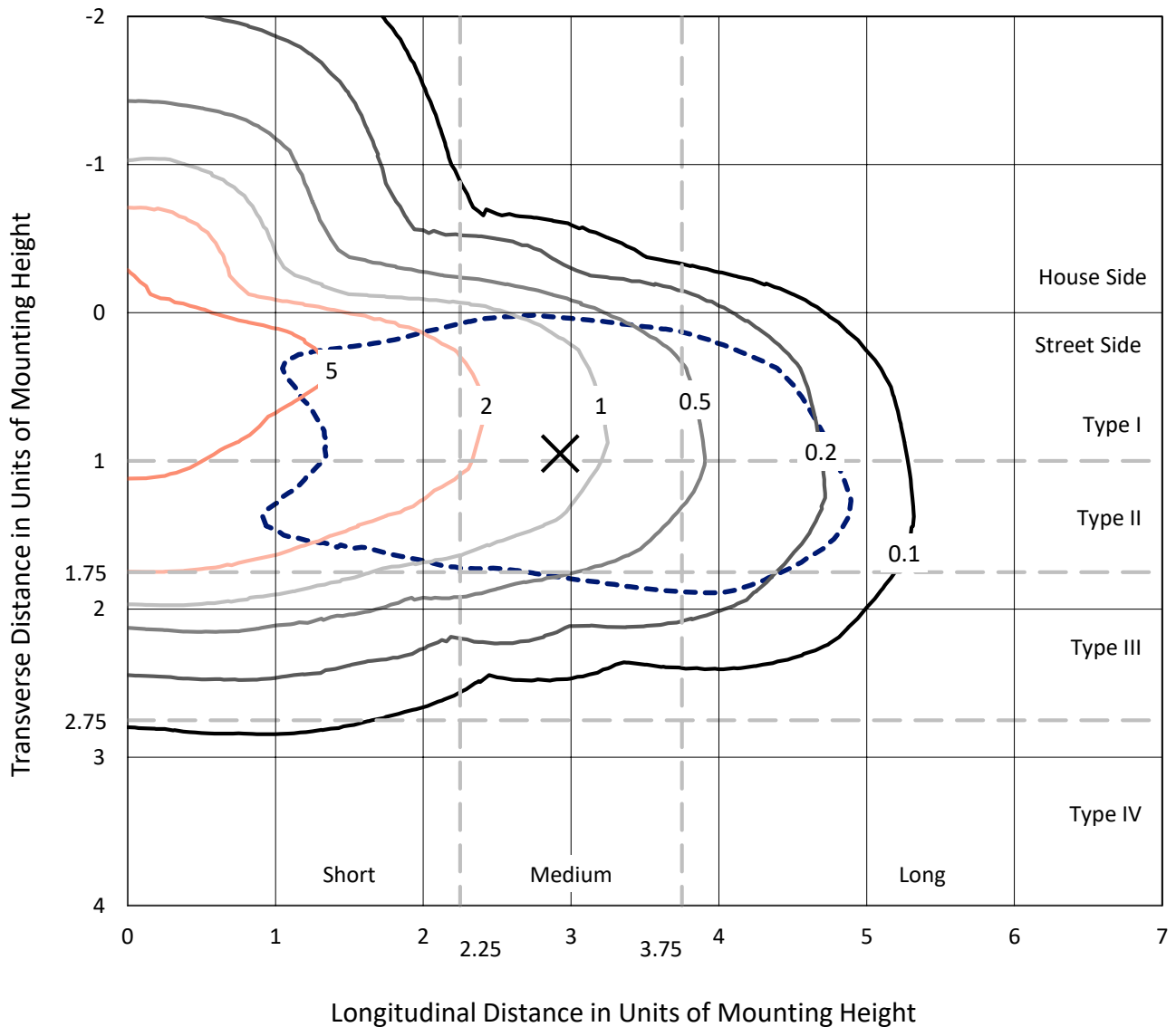
Input Watts (W): 226
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



REPORT NUMBER: P318151
 CATALOG NUMBER: GLEON-SA7A-760-U-T2

Iso-Footcandle Lines of Horizontal Illumination

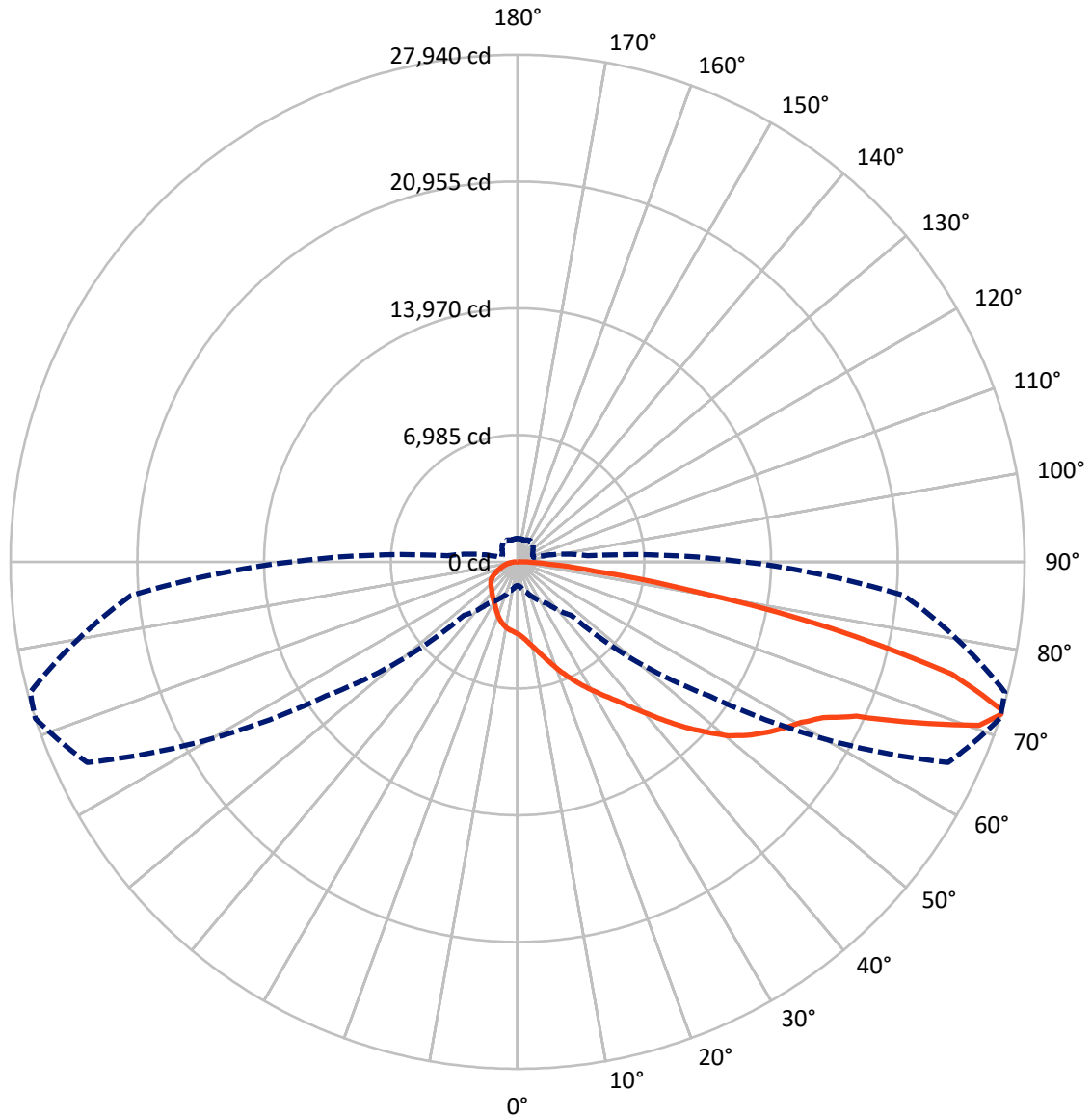
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 8.8 fc
 Type III - Medium - N/A

REPORT NUMBER: P318151
CATALOG NUMBER: GLEON-SA7A-760-U-T2

Luminous Intensity Polar Plot



— Vertical Plane Through 72-Deg Lateral - - - Horizontal Cone Through 72-Deg Vertical

REPORT NUMBER: P318151
 CATALOG NUMBER: GLEON-SA7A-760-U-T2

FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 6000.6 | 0.0 | 6000.6 |
| | % Fixture | 18.6 | 0.0 | 18.6 |
| Street Side | Lumens | 26346.4 | 0.0 | 26346.4 |
| | % Fixture | 81.4 | 0.0 | 81.4 |
| Total | Lumens | 32347.0 | 0.0 | 32347.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 398.8 | 1.2 |
| 10°-20° | 1288.6 | 4.0 |
| 20°-30° | 2258.0 | 7.0 |
| 30°-40° | 3348.0 | 10.4 |
| 40°-50° | 4896.7 | 15.1 |
| 50°-60° | 6737.8 | 20.8 |
| 60°-70° | 7501.1 | 23.2 |
| 70°-80° | 5082.7 | 15.7 |
| 80°-90° | 835.4 | 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° | 32347.0 | 100.0 |
| 0°-180° | 32347.0 | 100.0 |

Coefficient of Utilization

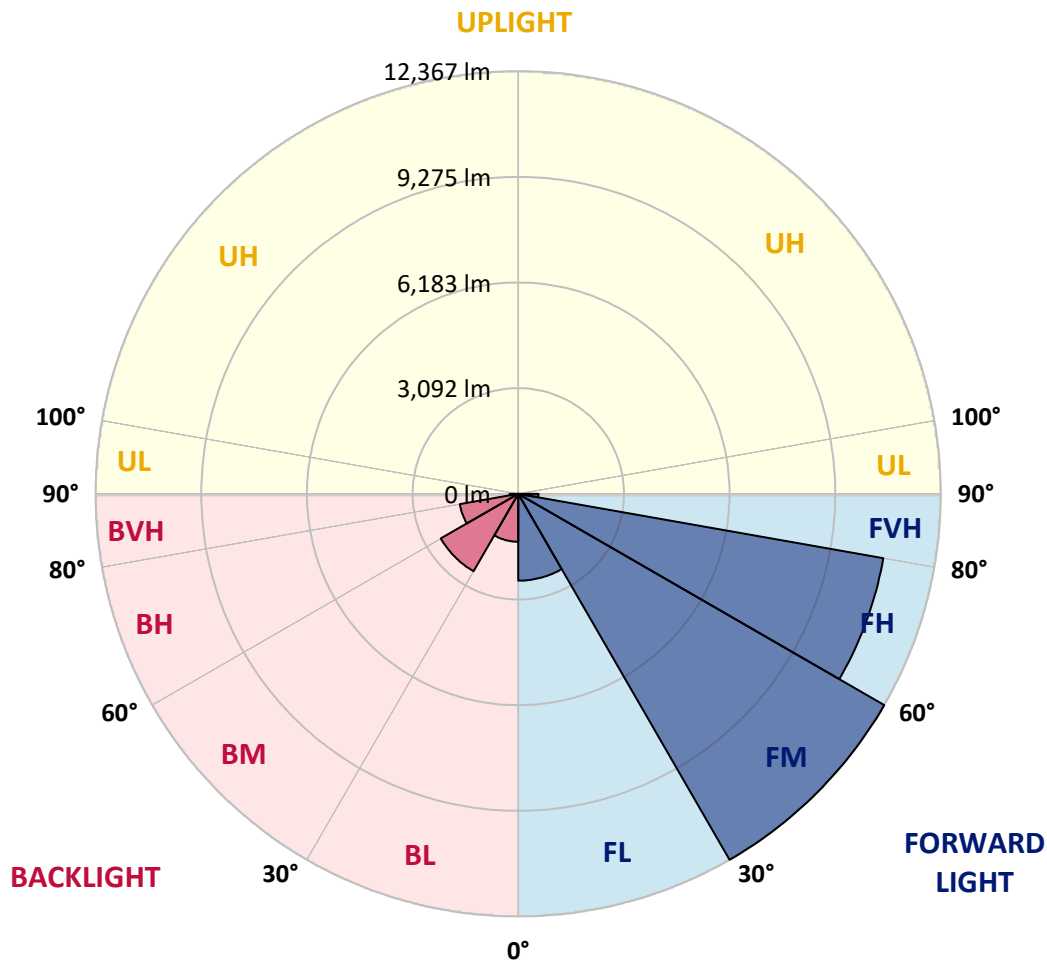


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|---------|-----------|-------------------------|------|----------|
| | | | B | U | G |
| FL (0°-30°) | 2542.7 | 7.9 | | | |
| FM (30°-60°) | 12366.7 | 38.2 | | | |
| FH (60°-80°) | 10847.8 | 33.5 | | | G4/12000 |
| FVH (80°-90°) | 589.3 | 1.8 | | | G4/750 |
| BL (0°-30°) | 1402.7 | 4.3 | B3/2500 | | |
| BM (30°-60°) | 2615.7 | 8.1 | B3/5000 | | |
| BH (60°-80°) | 1736.1 | 5.4 | B3/2500 | | G3/2500 |
| BVH (80°-90°) | 246.1 | 0.8 | | | 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 III Medium





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 72° | 75° | 85° |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0° | 3979.5 | 3979.5 | 3979.5 | 3979.5 | 3979.5 | 3979.5 | 3979.5 | 3979.5 | 3979.5 | 3979.5 | 3979.5 |
| 2.5° | 4396.1 | 4389.4 | 4366.0 | 4366.0 | 4321.5 | 4283.6 | 4212.3 | 4164.4 | 4107.6 | 4087.6 | 4020.7 |
| 5° | 4821.5 | 4823.8 | 4794.8 | 4774.8 | 4709.0 | 4628.9 | 4507.5 | 4397.2 | 4286.9 | 4242.4 | 4105.4 |
| 7.5° | 5179.1 | 5174.6 | 5166.8 | 5150.1 | 5088.8 | 5006.4 | 4842.7 | 4679.0 | 4516.4 | 4449.5 | 4213.4 |
| 10° | 5408.5 | 5418.5 | 5425.2 | 5433.0 | 5407.4 | 5348.4 | 5193.5 | 4994.2 | 4781.4 | 4690.1 | 4342.6 |
| 12.5° | 5524.3 | 5542.2 | 5573.3 | 5626.8 | 5669.1 | 5662.4 | 5550.0 | 5338.3 | 5085.5 | 4970.8 | 4504.1 |
| 15° | 5592.3 | 5615.7 | 5664.7 | 5760.5 | 5879.6 | 5947.6 | 5917.5 | 5725.9 | 5444.1 | 5302.7 | 4701.3 |
| 17.5° | 5634.6 | 5653.5 | 5729.3 | 5857.4 | 6034.4 | 6214.9 | 6294.0 | 6133.6 | 5849.6 | 5688.1 | 4927.3 |
| 20° | 5663.6 | 5678.0 | 5772.7 | 5923.1 | 6152.5 | 6439.9 | 6660.4 | 6620.3 | 6296.2 | 6086.8 | 5163.5 |
| 22.5° | 5728.2 | 5740.4 | 5830.6 | 5982.1 | 6236.0 | 6606.9 | 7013.5 | 7073.6 | 6767.3 | 6530.1 | 5416.3 |
| 25° | 5908.6 | 5908.6 | 5984.3 | 6090.1 | 6328.5 | 6751.7 | 7311.9 | 7578.1 | 7248.5 | 6972.2 | 5650.2 |
| 27.5° | 6252.7 | 6249.4 | 6277.2 | 6314.0 | 6494.4 | 6898.7 | 7578.1 | 8023.6 | 7747.4 | 7445.6 | 5877.4 |
| 30° | 6660.4 | 6682.7 | 6686.0 | 6668.2 | 6752.8 | 7082.5 | 7824.3 | 8493.7 | 8249.7 | 7924.5 | 6110.2 |
| 32.5° | 7185.0 | 7199.5 | 7182.7 | 7123.7 | 7111.5 | 7343.1 | 8066.0 | 8986.0 | 8793.3 | 8424.6 | 6322.9 |
| 35° | 7851.0 | 7823.2 | 7770.8 | 7650.5 | 7535.8 | 7691.7 | 8342.2 | 9478.2 | 9403.6 | 9029.4 | 6615.8 |
| 37.5° | 8564.9 | 8566.1 | 8501.5 | 8228.6 | 8070.4 | 8137.3 | 8723.1 | 10036.2 | 10142.1 | 9748.9 | 6991.2 |
| 40° | 9137.4 | 9167.5 | 9207.6 | 8849.0 | 8644.0 | 8736.5 | 9207.6 | 10683.3 | 11015.3 | 10602.0 | 7480.1 |
| 42.5° | 9537.3 | 9571.8 | 9685.4 | 9460.4 | 9247.7 | 9419.2 | 9777.8 | 11373.9 | 11995.4 | 11586.6 | 8052.6 |
| 45° | 9960.5 | 9979.4 | 10059.6 | 9962.7 | 9826.9 | 10213.3 | 10420.5 | 12088.9 | 13032.3 | 12635.8 | 8693.0 |
| 47.5° | 10406.0 | 10426.1 | 10508.5 | 10443.9 | 10372.6 | 10955.1 | 11091.0 | 12762.8 | 14025.8 | 13788.6 | 9376.9 |
| 50° | 10956.2 | 10969.6 | 11047.6 | 10930.6 | 10952.9 | 11514.2 | 11690.2 | 13380.9 | 15067.2 | 14824.4 | 10063.0 |
| 52.5° | 11706.9 | 11710.3 | 11818.3 | 11712.5 | 11607.8 | 11924.1 | 12205.9 | 13963.4 | 15883.6 | 15768.9 | 10749.1 |
| 55° | 12295.0 | 12330.6 | 12684.8 | 12662.5 | 12602.4 | 12296.1 | 12636.9 | 14518.1 | 16612.0 | 16666.6 | 11477.5 |
| 57.5° | 11919.6 | 12058.9 | 12776.1 | 13281.8 | 13774.1 | 13221.6 | 13219.4 | 15142.9 | 17289.2 | 17547.6 | 12278.3 |
| 60° | 10439.4 | 10628.8 | 11685.7 | 12807.3 | 14347.7 | 14832.2 | 14429.0 | 15905.8 | 17973.0 | 18420.8 | 13281.8 |
| 62.5° | 7455.6 | 7767.5 | 9199.8 | 10990.8 | 13561.3 | 15899.2 | 16890.4 | 17116.5 | 18903.0 | 19432.1 | 14586.0 |
| 65° | 3769.0 | 4005.1 | 5205.8 | 7363.2 | 10834.8 | 15201.9 | 19565.7 | 19767.3 | 20519.1 | 20989.1 | 16594.2 |
| 67.5° | 2289.9 | 2379.0 | 2964.9 | 4095.4 | 6642.6 | 11841.7 | 20438.9 | 24185.7 | 23646.6 | 23896.1 | 19457.7 |
| 70° | 1687.4 | 1753.1 | 2118.4 | 2719.8 | 3820.3 | 6948.9 | 17759.2 | 27338.8 | 26984.6 | 26956.7 | 21573.9 |
| 72° | 1314.3 | 1362.1 | 1685.1 | 2197.5 | 2793.4 | 4168.9 | 12871.9 | 26174.9 | 27940.2 | 27799.9 | 21380.1 |
| 72.5° | 1246.3 | 1288.6 | 1582.7 | 2068.3 | 2639.7 | 3779.0 | 11573.3 | 25389.7 | 27871.2 | 27807.7 | 21129.5 |
| 75° | 981.2 | 1011.3 | 1171.7 | 1599.4 | 2066.1 | 2144.0 | 6341.8 | 19676.0 | 24724.7 | 25752.7 | 19004.4 |
| 77.5° | 811.9 | 816.4 | 901.0 | 1163.9 | 1610.5 | 1515.9 | 3115.2 | 13651.6 | 17704.6 | 18835.1 | 13462.2 |
| 80° | 661.6 | 667.2 | 707.2 | 816.4 | 1218.5 | 1121.6 | 1479.1 | 7849.9 | 9912.6 | 9924.9 | 6402.0 |
| 82.5° | 526.8 | 527.9 | 572.5 | 597.0 | 875.4 | 801.9 | 847.6 | 3685.5 | 4331.5 | 4166.6 | 2301.1 |
| 85° | 370.9 | 363.1 | 559.1 | 490.1 | 572.5 | 514.6 | 467.8 | 1459.0 | 1791.0 | 1713.0 | 720.6 |
| 87.5° | 123.6 | 128.1 | 248.4 | 317.4 | 334.1 | 291.8 | 208.3 | 559.1 | 676.1 | 670.5 | 228.3 |
| 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: P318151

CATALOG NUMBER: GLEON-SA7A-760-U-T2

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 3979.5 | 3979.5 | 3979.5 | 3979.5 | 3979.5 | 3979.5 | 3979.5 | 3979.5 | 3979.5 | 3979.5 | 3979.5 |
| 2.5° | 3999.6 | 3963.9 | 3911.6 | 3853.7 | 3808.0 | 3761.2 | 3726.7 | 3708.9 | 3688.8 | 3672.1 | 3692.2 |
| 5° | 4041.9 | 3975.1 | 3863.7 | 3754.5 | 3674.4 | 3603.1 | 3551.8 | 3525.1 | 3500.6 | 3483.9 | 3486.1 |
| 7.5° | 4111.0 | 4002.9 | 3815.8 | 3656.5 | 3545.2 | 3468.3 | 3416.0 | 3398.1 | 3382.5 | 3378.1 | 3383.7 |
| 10° | 4184.5 | 4025.2 | 3752.3 | 3540.7 | 3413.7 | 3350.2 | 3326.9 | 3339.1 | 3350.2 | 3360.3 | 3371.4 |
| 12.5° | 4268.0 | 4045.2 | 3659.9 | 3404.8 | 3296.8 | 3272.3 | 3295.7 | 3349.1 | 3388.1 | 3411.5 | 3426.0 |
| 15° | 4377.1 | 4063.1 | 3552.9 | 3268.9 | 3196.5 | 3224.4 | 3303.5 | 3395.9 | 3463.8 | 3507.3 | 3514.0 |
| 17.5° | 4477.4 | 4061.9 | 3416.0 | 3131.9 | 3115.2 | 3196.5 | 3315.7 | 3446.0 | 3537.4 | 3598.6 | 3610.9 |
| 20° | 4581.0 | 4031.9 | 3256.7 | 2998.3 | 3032.8 | 3166.5 | 3321.3 | 3478.3 | 3588.6 | 3659.9 | 3676.6 |
| 22.5° | 4677.9 | 3979.5 | 3081.8 | 2876.9 | 2963.8 | 3126.4 | 3300.1 | 3459.4 | 3569.7 | 3627.6 | 3645.4 |
| 25° | 4743.6 | 3888.2 | 2904.7 | 2774.4 | 2902.5 | 3077.4 | 3231.1 | 3359.2 | 3441.6 | 3470.5 | 3475.0 |
| 27.5° | 4777.0 | 3769.0 | 2737.7 | 2685.3 | 2839.0 | 2997.2 | 3103.0 | 3166.5 | 3189.9 | 3187.6 | 3183.2 |
| 30° | 4781.4 | 3612.0 | 2594.0 | 2612.9 | 2765.5 | 2879.1 | 2929.2 | 2917.0 | 2886.9 | 2835.7 | 2840.1 |
| 32.5° | 4767.0 | 3434.9 | 2473.7 | 2543.9 | 2672.0 | 2735.4 | 2737.7 | 2678.6 | 2598.4 | 2517.1 | 2494.9 |
| 35° | 4771.4 | 3261.1 | 2367.9 | 2465.9 | 2558.3 | 2586.2 | 2560.6 | 2473.7 | 2364.5 | 2259.9 | 2237.6 |
| 37.5° | 4820.4 | 3109.7 | 2276.6 | 2375.7 | 2432.5 | 2439.2 | 2402.4 | 2311.1 | 2230.9 | 2128.4 | 2119.5 |
| 40° | 4937.4 | 3001.6 | 2189.7 | 2274.3 | 2306.6 | 2310.0 | 2257.6 | 2193.0 | 2199.7 | 2145.1 | 2144.0 |
| 42.5° | 5147.9 | 2954.9 | 2112.8 | 2168.5 | 2188.6 | 2195.3 | 2155.2 | 2113.9 | 2171.9 | 2136.2 | 2124.0 |
| 45° | 5419.6 | 2966.0 | 2048.2 | 2064.9 | 2101.7 | 2132.9 | 2108.4 | 2058.3 | 2080.5 | 1925.7 | 1874.5 |
| 47.5° | 5733.7 | 3037.3 | 1997.0 | 1975.8 | 2039.3 | 2098.4 | 2060.5 | 1984.8 | 1905.7 | 1752.0 | 1723.0 |
| 50° | 6101.3 | 3147.5 | 1950.2 | 1887.9 | 1971.4 | 2051.6 | 2013.7 | 1905.7 | 1786.5 | 1711.9 | 1701.9 |
| 52.5° | 6484.4 | 3282.3 | 1903.4 | 1791.0 | 1885.6 | 2015.9 | 1997.0 | 1887.9 | 1740.8 | 1667.3 | 1654.0 |
| 55° | 6918.8 | 3418.2 | 1844.4 | 1678.5 | 1793.2 | 1999.2 | 1989.2 | 1823.3 | 1706.3 | 1665.1 | 1655.1 |
| 57.5° | 7459.0 | 3573.0 | 1766.5 | 1561.5 | 1706.3 | 1939.1 | 1907.9 | 1784.3 | 1670.7 | 1639.5 | 1636.1 |
| 60° | 8162.9 | 3801.3 | 1654.0 | 1436.8 | 1600.5 | 1846.6 | 1840.0 | 1727.5 | 1613.9 | 1591.6 | 1587.1 |
| 62.5° | 9218.7 | 4178.9 | 1499.1 | 1312.0 | 1482.4 | 1689.6 | 1750.9 | 1650.6 | 1553.7 | 1552.6 | 1554.8 |
| 65° | 10856.0 | 4746.9 | 1331.0 | 1202.9 | 1363.3 | 1557.1 | 1647.3 | 1571.5 | 1492.5 | 1514.7 | 1518.1 |
| 67.5° | 12753.9 | 5218.0 | 1166.1 | 1096.0 | 1241.9 | 1431.2 | 1553.7 | 1492.5 | 1411.2 | 1469.1 | 1470.2 |
| 70° | 13385.4 | 4797.0 | 1021.3 | 990.1 | 1116.0 | 1309.8 | 1452.4 | 1405.6 | 1323.2 | 1381.1 | 1375.5 |
| 72° | 12456.5 | 3872.6 | 927.8 | 910.0 | 1021.3 | 1209.6 | 1362.1 | 1324.3 | 1243.0 | 1282.0 | 1267.5 |
| 72.5° | 12163.6 | 3692.2 | 904.4 | 889.9 | 995.7 | 1183.9 | 1338.8 | 1304.2 | 1222.9 | 1256.3 | 1243.0 |
| 75° | 10850.4 | 3206.6 | 777.4 | 780.8 | 868.7 | 1059.2 | 1207.3 | 1196.2 | 1112.7 | 1116.0 | 1111.5 |
| 77.5° | 7869.9 | 2351.2 | 654.9 | 677.2 | 739.5 | 931.1 | 1074.8 | 1068.1 | 976.8 | 960.1 | 956.7 |
| 80° | 3652.1 | 1199.5 | 533.5 | 543.5 | 608.1 | 778.5 | 916.6 | 907.7 | 834.2 | 813.1 | 800.8 |
| 82.5° | 1250.8 | 570.3 | 401.0 | 407.6 | 471.1 | 627.1 | 795.2 | 789.7 | 728.4 | 687.2 | 661.6 |
| 85° | 446.6 | 284.0 | 280.7 | 274.0 | 336.4 | 493.4 | 692.8 | 662.7 | 572.5 | 487.8 | 485.6 |
| 87.5° | 144.8 | 121.4 | 144.8 | 143.7 | 196.0 | 334.1 | 503.4 | 428.8 | 415.4 | 345.3 | 338.6 |
| 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
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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

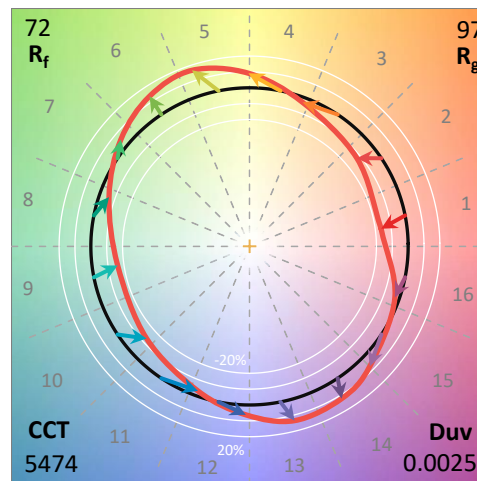
THIS IS A REVISION OF SP1-1908-441-4-R3. TO UPDATE THE CATALOG INFORMATION.TESTED IN SITU. ROADWAY AND AREA LUMINAIRE. (1) 70 CRI, 5000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

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

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 |

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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

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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 | | | |

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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

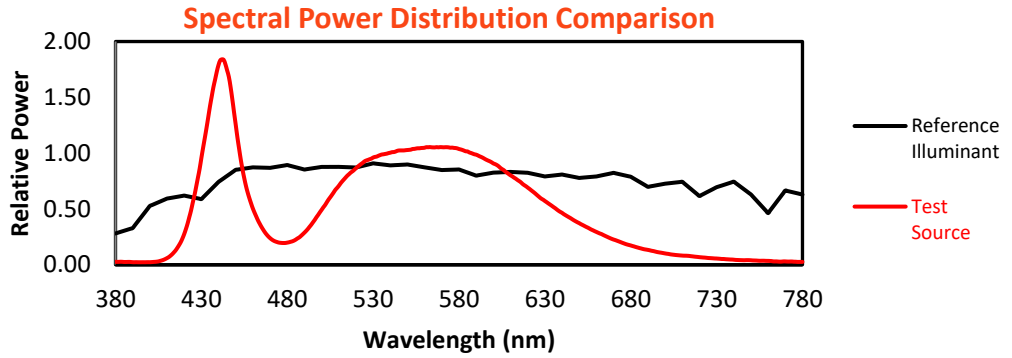
| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 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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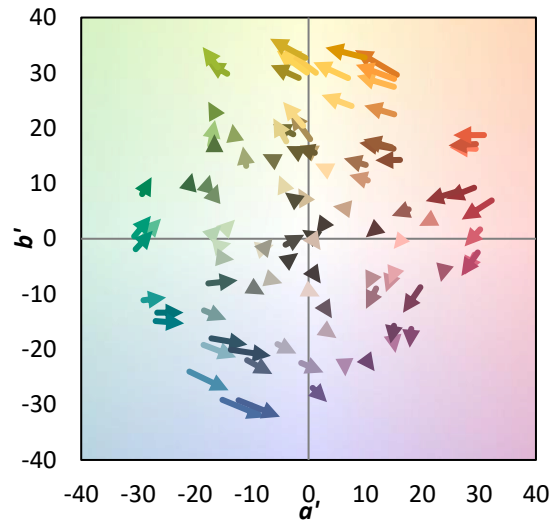
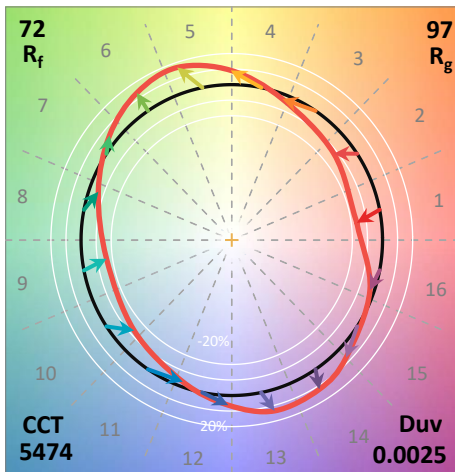
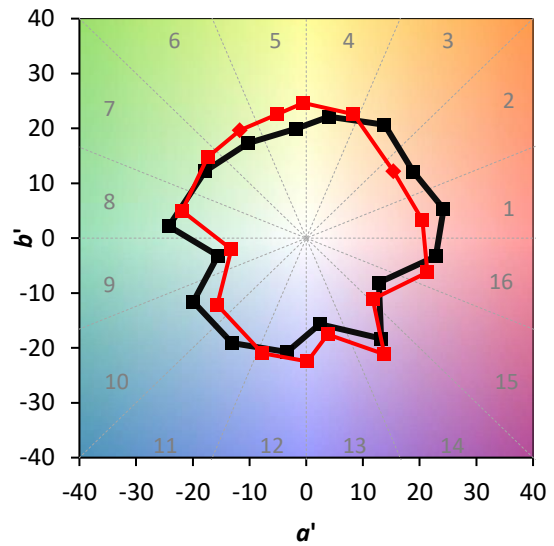
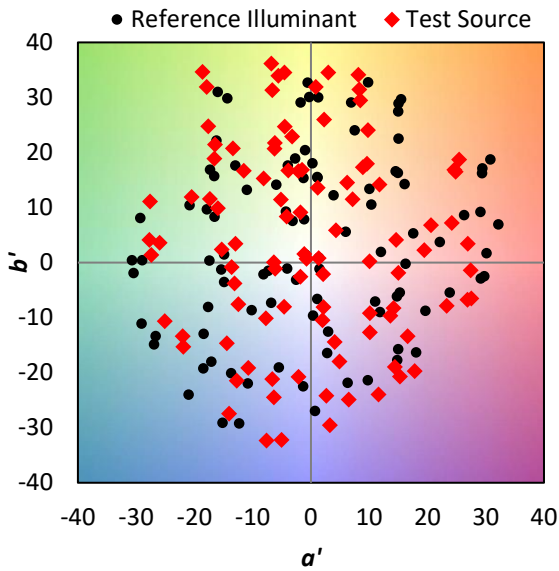
TM-30-18

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)