

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: P318763

Luminaire Tested: **GLEON-SA9B-750-U-T4FT**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P318763
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-16)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: GLEON-SA9B-750-U-T4FT
Description: GALLEON AREA AND ROADWAY LUMINAIRE
(9) 70 CRI, 5000K, 800mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV
FORWARD THROW OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 51394 lumens
Efficiency: N/A
Efficacy: 137.4 lumens/watt
Luminous Opening: Rectangular (W 2.5' x L: 1' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B4 - U0 - G5

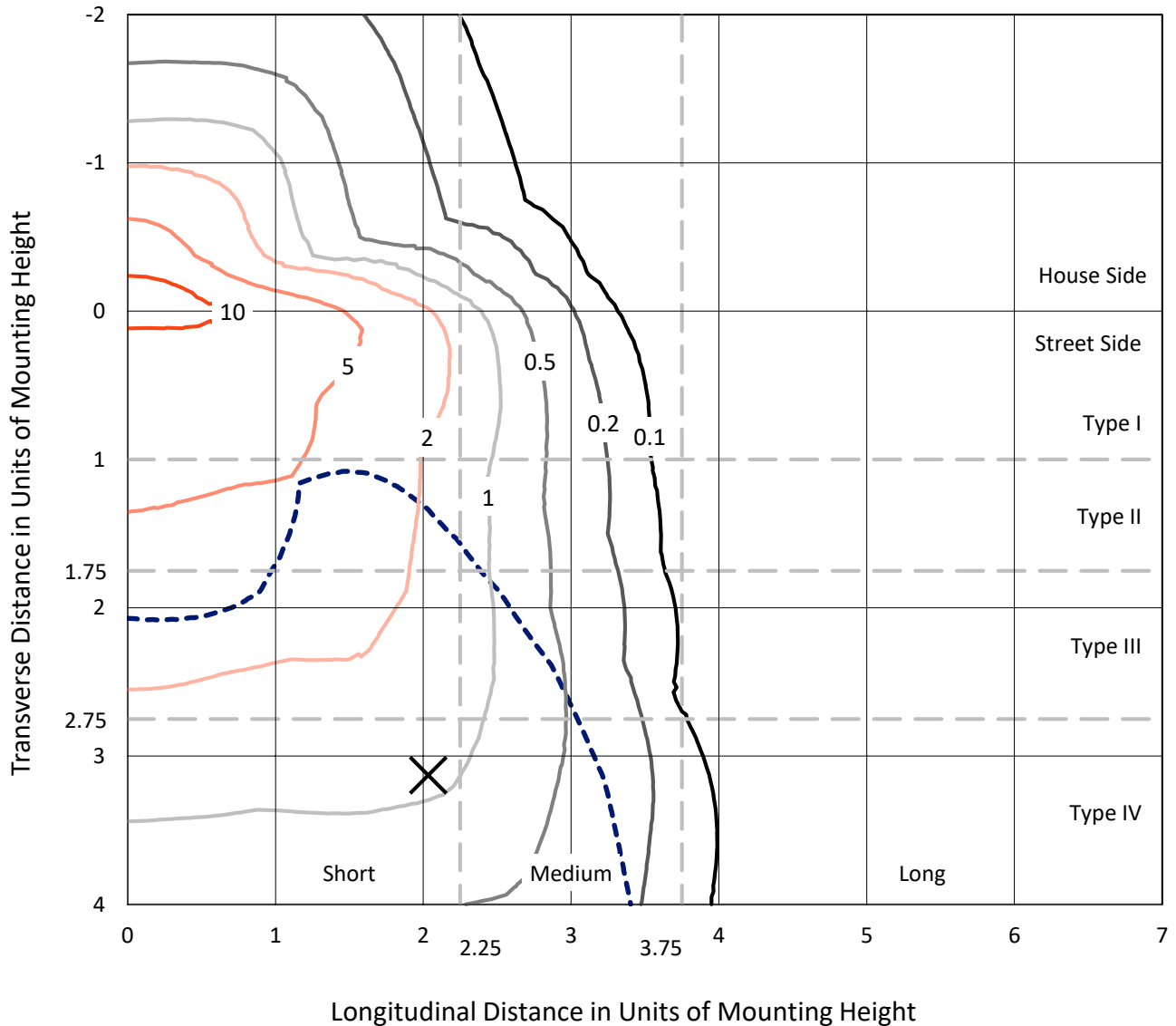
Input Watts (W): 374
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



REPORT NUMBER: P318763
 CATALOG NUMBER: GLEON-SA9B-750-U-T4FT

Iso-Footcandle Lines of Horizontal Illumination

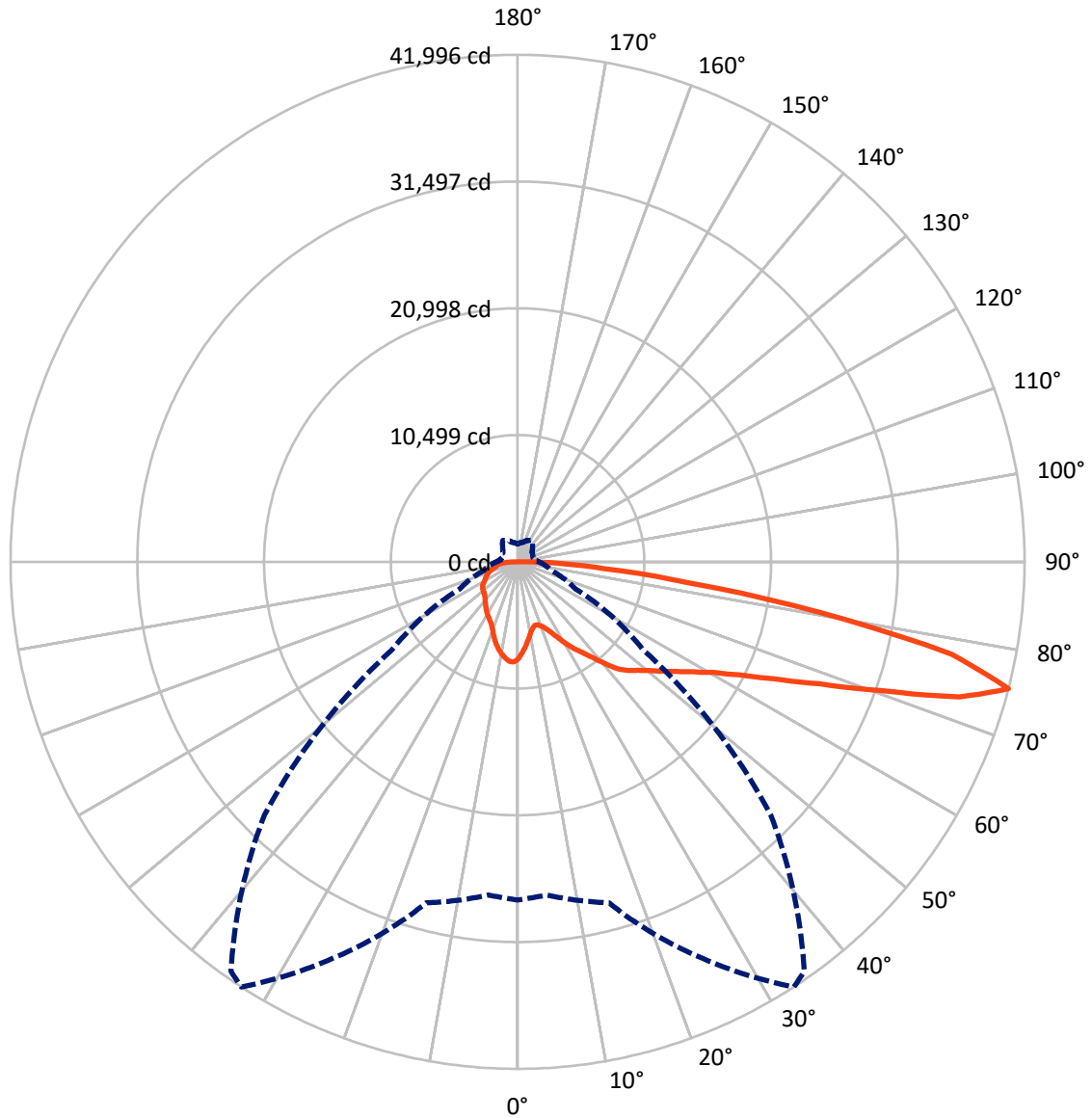
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 12.9 fc
 Type IV - Short - N/A

REPORT NUMBER: P318763
CATALOG NUMBER: GLEON-SA9B-750-U-T4FT

Luminous Intensity Polar Plot



— Vertical Plane Through 33-Deg Lateral - - - Horizontal Cone Through 75-Deg Vertical

REPORT NUMBER: P318763
 CATALOG NUMBER: GLEON-SA9B-750-U-T4FT

FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 11035.6 | 0.0 | 11035.6 |
| | % Fixture | 21.5 | 0.0 | 21.5 |
| Street Side | Lumens | 40358.4 | 0.0 | 40358.4 |
| | % Fixture | 78.5 | 0.0 | 78.5 |
| Total | Lumens | 51394.0 | 0.0 | 51394.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 726.5 | 1.4 |
| 10°-20° | 1967.7 | 3.8 |
| 20°-30° | 3213.5 | 6.3 |
| 30°-40° | 4785.6 | 9.3 |
| 40°-50° | 6863.9 | 13.4 |
| 50°-60° | 9423.1 | 18.3 |
| 60°-70° | 11797.3 | 23.0 |
| 70°-80° | 10672.4 | 20.8 |
| 80°-90° | 1944.0 | 3.8 |
| 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° | 51394.0 | 100.0 |
| 0°-180° | 51394.0 | 100.0 |

Coefficient of Utilization

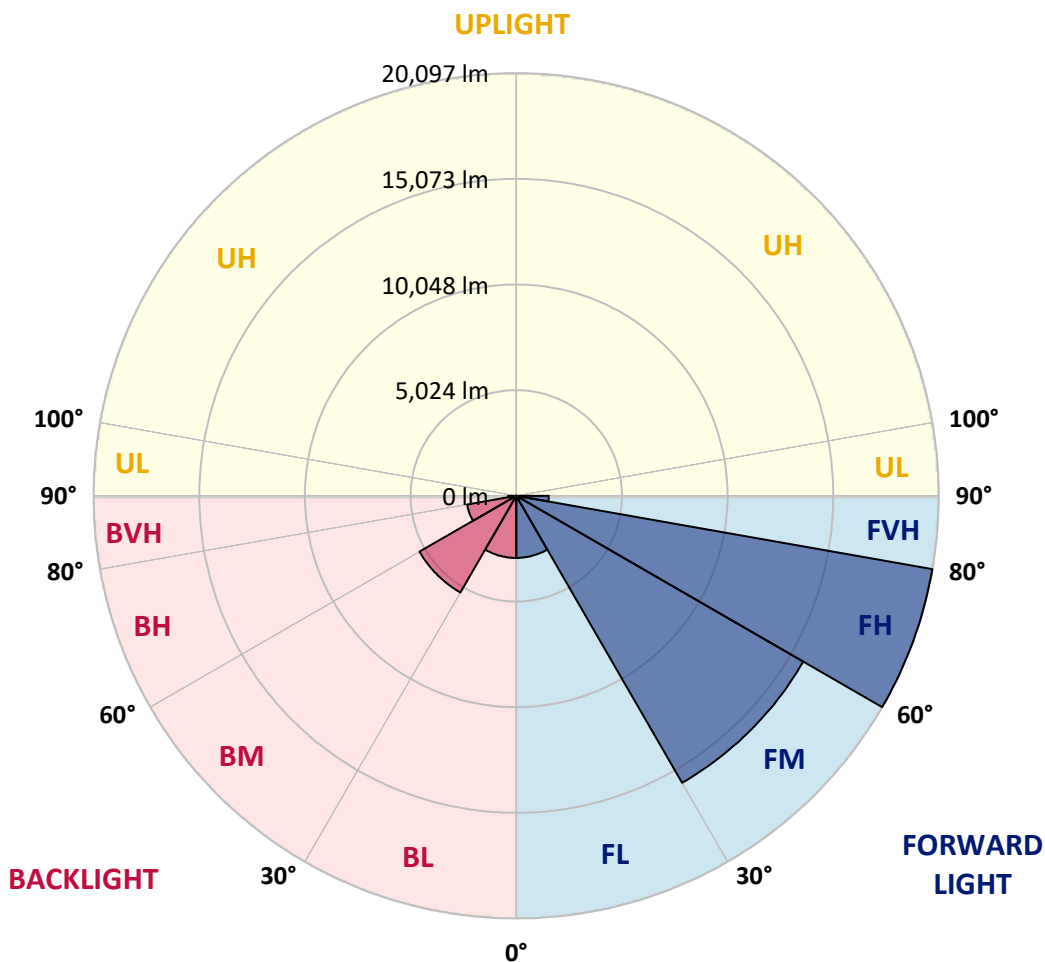


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 CATALOG NUMBER: GLEON-SA9B-750-U-T4FT

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|---------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 2951.8 | 5.7 | | | |
| FM (30°-60°) | 15761.5 | 30.7 | | | |
| FH (60°-80°) | 20096.8 | 39.1 | | | G5 |
| FVH (80°-90°) | 1548.3 | 3.0 | | | G5 |
| BL (0°-30°) | 2955.9 | 5.8 | B4/5000 | | |
| BM (30°-60°) | 5311.1 | 10.3 | B4/8500 | | |
| BH (60°-80°) | 2372.9 | 4.6 | B3/2500 | | G3/2500 |
| BVH (80°-90°) | 395.8 | 0.8 | | | G3/500 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B4-U0-G5
 Type IV Short





REPORT NUMBER: P318763

CATALOG NUMBER: GLEON-SA9B-750-U-T4FT

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 33° | 35° | 45° | 55° | 65° | 75° | 85° |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0° | 8033.2 | 8033.2 | 8033.2 | 8033.2 | 8033.2 | 8033.2 | 8033.2 | 8033.2 | 8033.2 | 8033.2 | 8033.2 |
| 2.5° | 7459.8 | 7431.3 | 7484.6 | 7491.7 | 7537.9 | 7555.6 | 7619.5 | 7718.9 | 7800.6 | 7894.7 | 7979.9 |
| 5° | 6783.4 | 6763.8 | 6838.4 | 6891.7 | 6992.9 | 7035.5 | 7186.4 | 7397.6 | 7585.8 | 7798.8 | 7992.3 |
| 7.5° | 6140.7 | 6130.1 | 6213.5 | 6334.2 | 6451.4 | 6510.0 | 6770.9 | 7078.1 | 7392.3 | 7736.7 | 8033.2 |
| 10° | 5599.3 | 5595.7 | 5675.6 | 5794.5 | 5966.7 | 6032.4 | 6369.7 | 6774.5 | 7214.8 | 7688.8 | 8102.4 |
| 12.5° | 5295.7 | 5308.1 | 5345.4 | 5444.8 | 5604.6 | 5670.3 | 6044.8 | 6520.6 | 7065.6 | 7672.8 | 8203.6 |
| 15° | 5370.2 | 5389.8 | 5325.9 | 5322.3 | 5435.9 | 5487.4 | 5838.9 | 6339.5 | 6959.1 | 7699.4 | 8350.9 |
| 17.5° | 5688.0 | 5691.6 | 5522.9 | 5416.4 | 5485.6 | 5512.3 | 5775.0 | 6236.6 | 6897.0 | 7759.8 | 8535.6 |
| 20° | 6135.4 | 6126.5 | 5828.3 | 5650.7 | 5688.0 | 5695.1 | 5865.5 | 6238.4 | 6891.7 | 7864.5 | 8775.2 |
| 22.5° | 6728.3 | 6662.6 | 6261.4 | 6020.0 | 6011.1 | 6000.5 | 6098.1 | 6369.7 | 6969.8 | 8034.9 | 9061.1 |
| 25° | 7502.4 | 7440.2 | 6888.1 | 6557.9 | 6486.9 | 6460.3 | 6474.5 | 6650.2 | 7124.2 | 8217.8 | 9380.6 |
| 27.5° | 8363.4 | 8255.1 | 7722.5 | 7255.6 | 7108.2 | 7071.0 | 6985.8 | 7046.1 | 7292.9 | 8393.6 | 9760.5 |
| 30° | 9084.1 | 9025.6 | 8560.4 | 8006.5 | 7832.6 | 7779.3 | 7555.6 | 7489.9 | 7536.1 | 8633.2 | 10239.9 |
| 32.5° | 9487.1 | 9448.1 | 9165.8 | 8718.4 | 8556.9 | 8482.3 | 8166.3 | 8034.9 | 7926.7 | 9011.4 | 10889.6 |
| 35° | 9975.3 | 9950.5 | 9780.1 | 9455.2 | 9215.5 | 9137.4 | 8892.4 | 8755.7 | 8477.0 | 9531.5 | 11729.3 |
| 37.5° | 10596.7 | 10570.1 | 10573.6 | 10310.9 | 10025.0 | 9952.3 | 9790.7 | 9646.9 | 9190.7 | 10215.0 | 12641.8 |
| 40° | 11299.7 | 11248.2 | 11228.7 | 11216.3 | 11035.2 | 10994.3 | 10909.1 | 10713.9 | 10085.4 | 11031.6 | 13541.9 |
| 42.5° | 12357.8 | 12174.9 | 11784.4 | 11931.7 | 12111.0 | 12089.7 | 12158.9 | 11878.4 | 11079.6 | 11997.4 | 14420.7 |
| 45° | 13378.6 | 13078.5 | 12403.9 | 12435.9 | 12828.2 | 12947.2 | 13465.5 | 13266.7 | 12157.2 | 13055.5 | 15329.6 |
| 47.5° | 13843.7 | 13616.4 | 13043.0 | 13044.8 | 13433.6 | 13680.4 | 14816.5 | 14674.5 | 13289.8 | 14257.3 | 16439.2 |
| 50° | 14363.8 | 14136.6 | 13621.8 | 13815.3 | 14154.4 | 14417.1 | 16121.4 | 16048.6 | 14367.4 | 15572.8 | 17768.8 |
| 52.5° | 14931.9 | 14546.7 | 14220.0 | 14566.2 | 15042.0 | 15347.3 | 17428.0 | 17229.2 | 15356.2 | 16897.2 | 19297.4 |
| 55° | 14939.0 | 14834.3 | 15082.8 | 15336.7 | 16048.6 | 16423.2 | 18796.7 | 18271.2 | 16162.2 | 18198.5 | 20541.8 |
| 57.5° | 15789.4 | 15619.0 | 16146.2 | 16263.4 | 17193.6 | 17616.2 | 20158.4 | 19178.4 | 16982.4 | 19196.2 | 21212.9 |
| 60° | 16914.9 | 16769.4 | 17200.7 | 17509.6 | 18610.3 | 19174.9 | 21612.3 | 20110.4 | 17626.8 | 19948.9 | 21180.9 |
| 62.5° | 18858.9 | 18693.8 | 18688.4 | 19121.6 | 20604.0 | 21260.8 | 23243.8 | 21024.7 | 17882.5 | 20098.0 | 20277.3 |
| 65° | 21704.6 | 21441.9 | 20946.6 | 21152.5 | 23357.4 | 24012.5 | 25067.0 | 21686.9 | 17545.2 | 19299.1 | 17949.9 |
| 67.5° | 24474.1 | 24465.2 | 23856.3 | 24278.8 | 26993.2 | 27518.7 | 27144.1 | 21752.6 | 16492.4 | 16517.3 | 13820.6 |
| 70° | 27234.7 | 27270.2 | 27167.2 | 28637.1 | 31905.4 | 32452.2 | 29356.1 | 20870.3 | 14126.0 | 11928.1 | 8279.9 |
| 72.5° | 29421.8 | 29412.9 | 29931.3 | 33721.6 | 38280.5 | 38158.0 | 31220.2 | 18196.7 | 10142.2 | 6439.0 | 3957.1 |
| 75° | 28005.1 | 27696.2 | 29240.7 | 36238.9 | 41996.2 | 41397.9 | 29634.9 | 12693.3 | 5263.7 | 2931.0 | 2130.3 |
| 77.5° | 18265.9 | 18558.8 | 20825.9 | 29936.7 | 36734.2 | 36006.4 | 21741.9 | 5922.4 | 2480.1 | 1922.6 | 1544.5 |
| 80° | 6614.7 | 6923.6 | 9751.6 | 16957.5 | 25308.5 | 25189.5 | 10706.8 | 2433.9 | 1677.6 | 1452.2 | 1125.5 |
| 82.5° | 2275.9 | 2389.5 | 3847.0 | 7530.8 | 14289.3 | 14821.9 | 4028.1 | 1382.9 | 1219.6 | 1029.7 | 770.5 |
| 85° | 893.0 | 1022.6 | 1759.3 | 3623.4 | 7207.7 | 7260.9 | 1631.5 | 827.3 | 848.6 | 674.6 | 422.5 |
| 87.5° | 339.1 | 411.9 | 841.5 | 1683.0 | 3291.4 | 3023.3 | 584.1 | 394.1 | 482.9 | 401.2 | 200.6 |
| 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: P318763
 CATALOG NUMBER: GLEON-SA9B-750-U-T4FT

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 8033.2 | 8033.2 | 8033.2 | 8033.2 | 8033.2 | 8033.2 | 8033.2 | 8033.2 | 8033.2 | 8033.2 | 8033.2 |
| 2.5° | 8045.6 | 8082.9 | 8161.0 | 8214.2 | 8271.1 | 8287.0 | 8294.1 | 8308.3 | 8322.5 | 8317.2 | 8319.0 |
| 5° | 8095.3 | 8168.1 | 8294.1 | 8347.4 | 8372.3 | 8343.8 | 8288.8 | 8244.4 | 8212.5 | 8194.7 | 8189.4 |
| 7.5° | 8177.0 | 8279.9 | 8414.9 | 8406.0 | 8349.2 | 8223.1 | 8081.1 | 7974.6 | 7885.8 | 7853.9 | 7836.1 |
| 10° | 8285.3 | 8406.0 | 8500.1 | 8398.9 | 8233.8 | 8015.4 | 7802.4 | 7637.3 | 7504.1 | 7452.7 | 7443.8 |
| 12.5° | 8423.7 | 8546.2 | 8564.0 | 8349.2 | 8075.8 | 7777.5 | 7488.2 | 7269.8 | 7071.0 | 7007.1 | 6992.9 |
| 15° | 8603.0 | 8718.4 | 8608.4 | 8262.2 | 7880.5 | 7479.3 | 7104.7 | 6808.2 | 6598.7 | 6520.6 | 6492.2 |
| 17.5° | 8791.2 | 8901.3 | 8617.2 | 8118.4 | 7624.9 | 7126.0 | 6655.5 | 6352.0 | 6112.3 | 6021.8 | 6011.1 |
| 20° | 9016.7 | 9066.4 | 8580.0 | 7912.5 | 7273.3 | 6668.0 | 6172.7 | 5886.8 | 5759.0 | 5695.1 | 5688.0 |
| 22.5° | 9295.4 | 9242.1 | 8494.7 | 7633.7 | 6827.8 | 6138.9 | 5735.9 | 5602.8 | 5570.8 | 5556.6 | 5562.0 |
| 25° | 9590.1 | 9426.8 | 8368.7 | 7269.8 | 6265.0 | 5609.9 | 5416.4 | 5453.7 | 5496.3 | 5491.0 | 5491.0 |
| 27.5° | 9915.0 | 9615.0 | 8175.2 | 6786.9 | 5641.9 | 5176.7 | 5199.8 | 5336.5 | 5400.4 | 5398.6 | 5396.9 |
| 30° | 10332.2 | 9828.0 | 7928.4 | 6206.4 | 5059.6 | 4871.4 | 5011.6 | 5178.5 | 5265.5 | 5261.9 | 5263.7 |
| 32.5° | 10845.2 | 10062.3 | 7592.9 | 5558.4 | 4638.8 | 4645.9 | 4807.5 | 4972.6 | 5073.8 | 5064.9 | 5066.7 |
| 35° | 11445.3 | 10325.1 | 7138.4 | 4919.3 | 4360.1 | 4466.6 | 4594.4 | 4709.8 | 4805.7 | 4793.3 | 4780.8 |
| 37.5° | 12098.6 | 10582.5 | 6534.8 | 4347.7 | 4132.9 | 4299.7 | 4406.3 | 4425.8 | 4470.2 | 4438.2 | 4415.1 |
| 40° | 12719.9 | 10779.5 | 5757.3 | 3879.0 | 3903.9 | 4157.7 | 4227.0 | 4148.8 | 4069.0 | 4058.3 | 4026.3 |
| 42.5° | 13261.4 | 10845.2 | 4970.8 | 3504.4 | 3662.4 | 4008.6 | 4051.2 | 3887.9 | 3744.1 | 3676.6 | 3648.2 |
| 45° | 13833.0 | 10868.3 | 4237.6 | 3190.2 | 3429.9 | 3875.4 | 3921.6 | 3703.2 | 3500.9 | 3355.3 | 3307.4 |
| 47.5° | 14580.4 | 11035.2 | 3667.7 | 2957.6 | 3252.3 | 3786.7 | 3852.4 | 3555.9 | 3293.2 | 3085.4 | 3041.1 |
| 50° | 15558.6 | 11365.4 | 3204.4 | 2780.1 | 3136.9 | 3728.1 | 3802.7 | 3412.1 | 3122.7 | 2872.4 | 2828.0 |
| 52.5° | 16645.1 | 11669.0 | 2829.8 | 2636.3 | 3025.1 | 3625.1 | 3738.8 | 3309.1 | 2963.0 | 2675.4 | 2627.4 |
| 55° | 17404.9 | 11436.4 | 2528.0 | 2487.2 | 2879.5 | 3477.8 | 3650.0 | 3222.1 | 2733.9 | 2483.6 | 2441.0 |
| 57.5° | 17550.5 | 10641.1 | 2299.0 | 2332.7 | 2703.8 | 3293.2 | 3513.3 | 3028.6 | 2609.7 | 2400.2 | 2355.8 |
| 60° | 17152.8 | 9533.3 | 2128.6 | 2190.7 | 2515.6 | 3060.6 | 3257.7 | 2891.9 | 2490.7 | 2311.4 | 2274.1 |
| 62.5° | 16153.3 | 8398.9 | 2002.5 | 2062.9 | 2339.8 | 2824.5 | 3097.9 | 2748.1 | 2370.0 | 2210.2 | 2173.0 |
| 65° | 14134.8 | 7051.4 | 1881.8 | 1949.3 | 2176.5 | 2620.3 | 2954.1 | 2615.0 | 2251.1 | 2128.6 | 2093.1 |
| 67.5° | 10669.5 | 5281.5 | 1768.2 | 1828.5 | 2030.9 | 2442.8 | 2797.9 | 2483.6 | 2135.7 | 2057.6 | 2014.9 |
| 70° | 6282.7 | 3307.4 | 1638.6 | 1702.5 | 1878.3 | 2258.2 | 2631.0 | 2339.8 | 1991.9 | 1956.4 | 1901.3 |
| 72.5° | 2923.9 | 1990.1 | 1491.2 | 1553.4 | 1686.5 | 2011.4 | 2416.2 | 2151.6 | 1821.4 | 1743.3 | 1668.8 |
| 75° | 1745.1 | 1455.7 | 1317.3 | 1372.3 | 1466.4 | 1748.7 | 2146.3 | 1959.9 | 1659.9 | 1556.9 | 1478.8 |
| 77.5° | 1304.8 | 1113.1 | 1125.5 | 1184.1 | 1260.5 | 1530.3 | 1901.3 | 1809.0 | 1535.6 | 1455.7 | 1402.5 |
| 80° | 939.1 | 845.0 | 917.8 | 981.7 | 1061.6 | 1391.8 | 1821.4 | 1672.3 | 1388.3 | 1281.8 | 1232.0 |
| 82.5° | 626.7 | 607.1 | 690.6 | 756.3 | 834.4 | 1217.8 | 1711.4 | 1464.6 | 1185.9 | 1051.0 | 940.9 |
| 85° | 346.2 | 365.7 | 465.1 | 493.5 | 561.0 | 857.5 | 1402.5 | 1177.0 | 893.0 | 719.0 | 687.0 |
| 87.5° | 143.8 | 168.7 | 250.3 | 241.4 | 298.2 | 511.3 | 923.1 | 710.1 | 568.1 | 424.3 | 330.2 |
| 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 | CRI (Ra): | 73.5 | R9: | -28.4 |
| CIE u': | 0.2101 | R1: | 70.5 | R10: | 48.6 |
| CIE v': | 0.4904 | R2: | 77.7 | R11: | 73.2 |
| Duv: | 0.0037 | R3: | 84.6 | R12: | 50.7 |
| CIE x: | 0.3493 | R4: | 74.7 | R13: | 71.2 |
| CIE y: | 0.3624 | R5: | 71.9 | R14: | 91.4 |
| CIE z: | 0.2884 | R6: | 70.7 | | |
| Peak Wavelength (nm): | 444 | R7: | 81.2 | | |
| Dominant Wavelength (nm): | 571 | R8: | 56.9 | | |
| Purity: | 13.7 | | | | |
| Rf: | 74.9 | | | | |
| Rg: | 96.3 | | | | |



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 |

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

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 | | | |

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

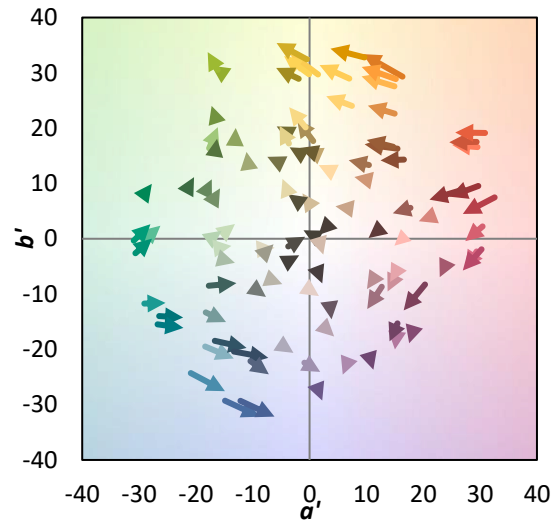
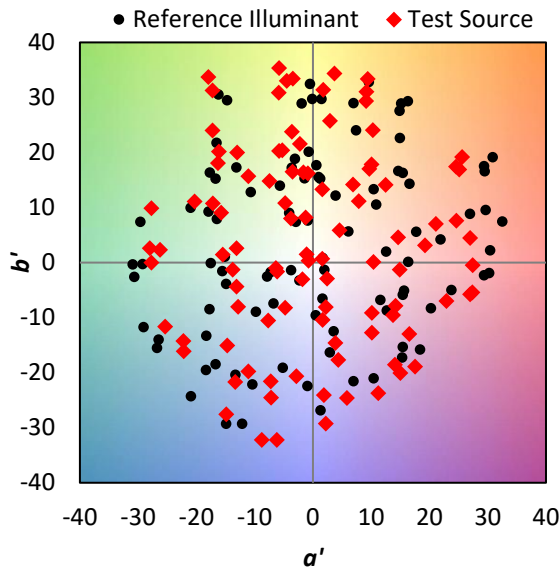
TM-30-18

Summary

$R_f = 74.9$
 $R_g = 96.3$
 $CIE R_a = 73.5$
 $R_9 = -28.4$



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)