

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: P321176

Luminaire Tested: **GLEON-SA2D-722-U-AFL**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P321176
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-29)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: GLEON-SA2D-722-U-AFL
Description: GALLEON AREA AND ROADWAY LUMINAIRE
(2) 70 CRI, 2200K, 1200mA LIGHTSQUARES WITH 16 LEDS EACH AND AUTOMOTIVE
FRONTLINE OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 11973 lumens
Efficiency: N/A
Efficacy: 92.8 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 1' x H: 0')
IES Classification: Type II - Short
BUG Rating: B2 - U0 - G2

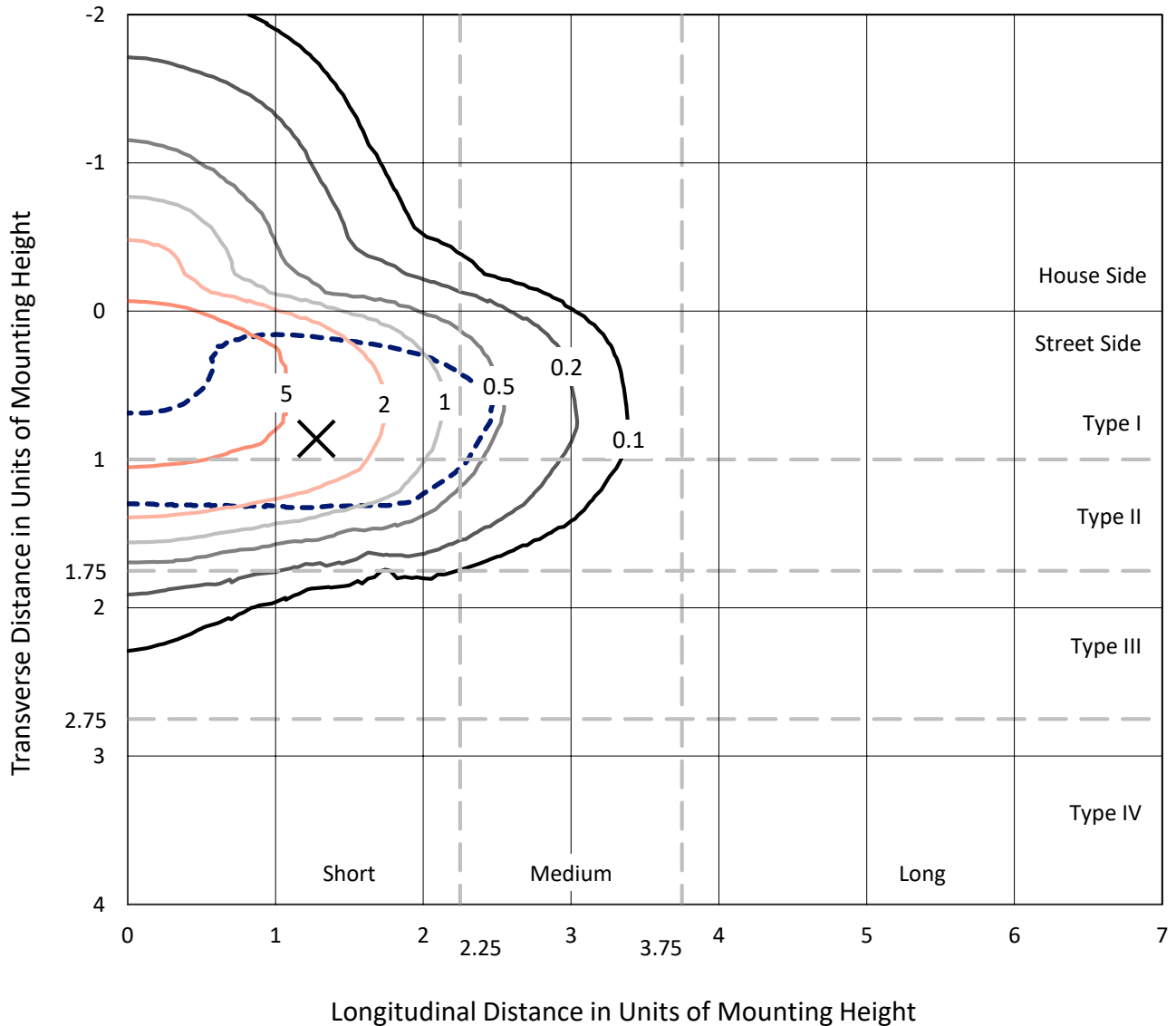
Input Watts (W): 129
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



REPORT NUMBER: P321176
 CATALOG NUMBER: GLEON-SA2D-722-U-AFL

Iso-Footcandle Lines of Horizontal Illumination

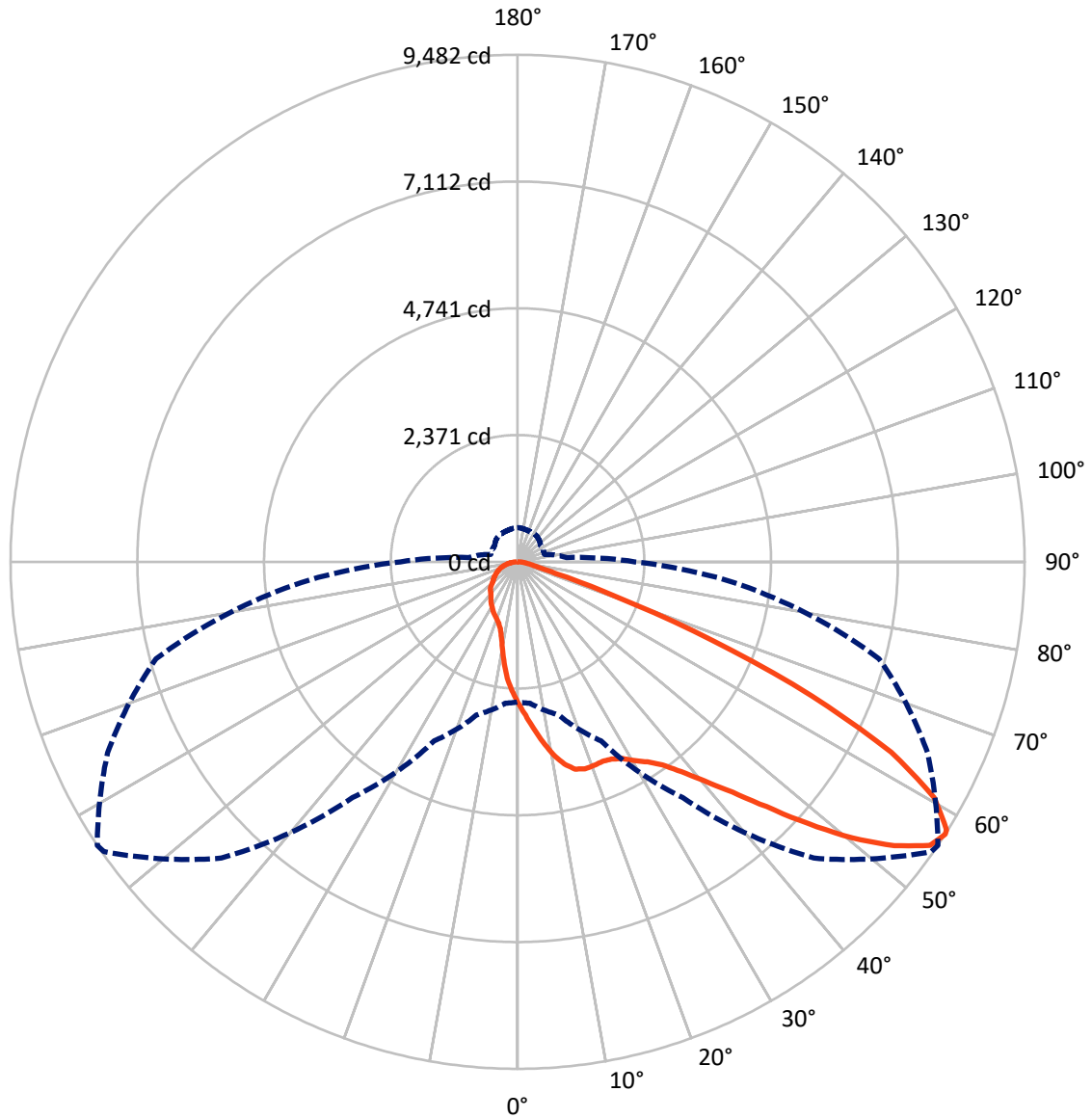
✕ Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 9.2 fc
 Type II - Short - N/A

REPORT NUMBER: P321176
CATALOG NUMBER: GLEON-SA2D-722-U-AFL

Luminous Intensity Polar Plot



— Vertical Plane Through 56-Deg Lateral - - - Horizontal Cone Through 57-Deg Vertical

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 CATALOG NUMBER: GLEON-SA2D-722-U-AFL

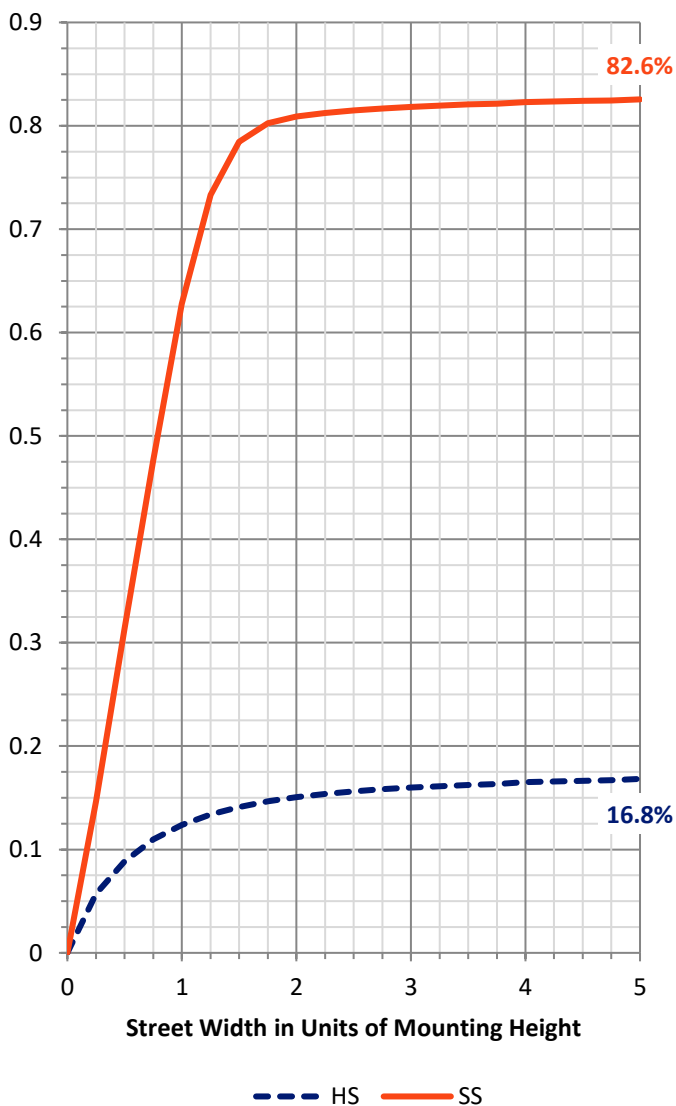
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 2063.9 | 0.0 | 2063.9 |
| | % Fixture | 17.2 | 0.0 | 17.2 |
| Street Side | Lumens | 9909.1 | 0.0 | 9909.1 |
| | % Fixture | 82.8 | 0.0 | 82.8 |
| Total | Lumens | 11973.0 | 0.0 | 11973.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 253.7 | 2.1 |
| 10°-20° | 717.2 | 6.0 |
| 20°-30° | 1168.2 | 9.8 |
| 30°-40° | 1746.3 | 14.6 |
| 40°-50° | 2648.8 | 22.1 |
| 50°-60° | 2968.8 | 24.8 |
| 60°-70° | 1753.5 | 14.6 |
| 70°-80° | 574.5 | 4.8 |
| 80°-90° | 141.9 | 1.2 |
| 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° | 11973.0 | 100.0 |
| 0°-180° | 11973.0 | 100.0 |

Coefficient of Utilization

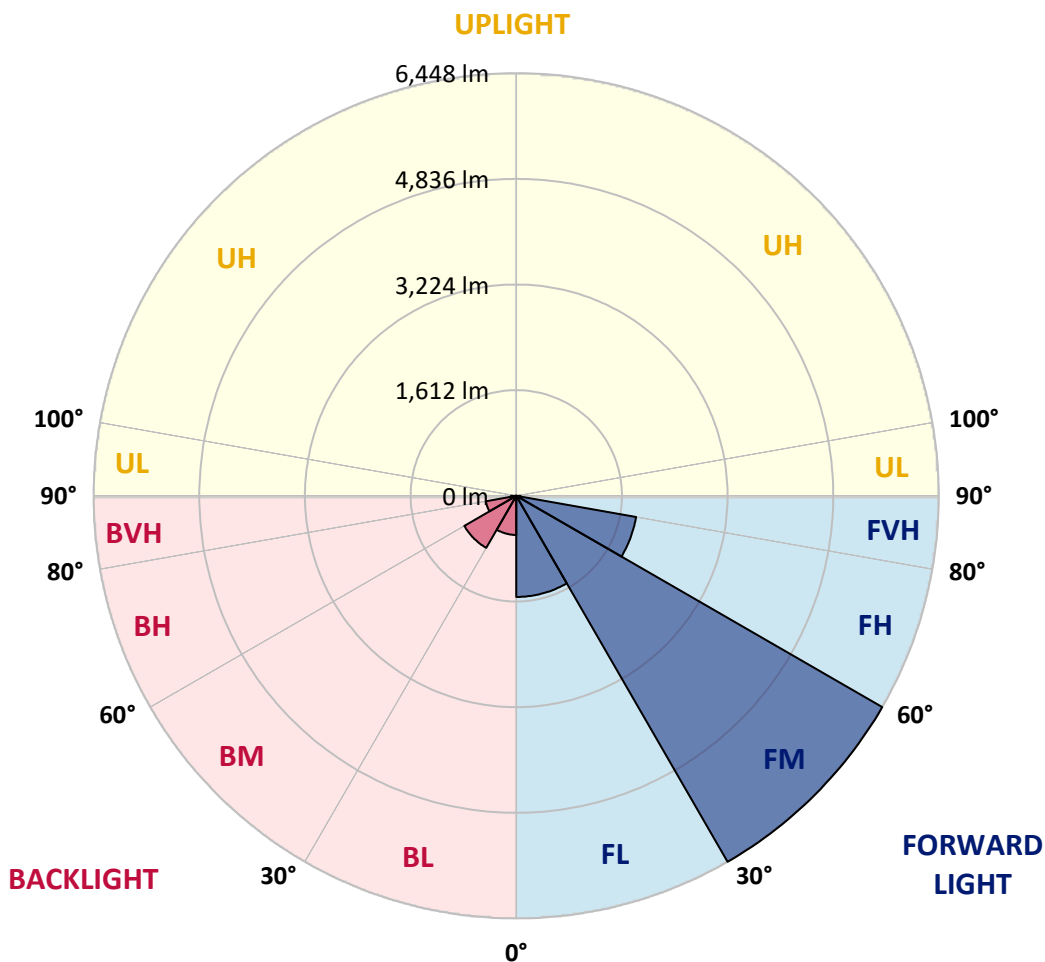


REPORT NUMBER: P321176
 CATALOG NUMBER: GLEON-SA2D-722-U-AFL

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1542.3 | 12.9 | | | |
| FM (30°-60°) | 6447.9 | 53.9 | | | |
| FH (60°-80°) | 1856.4 | 15.5 | | | G2/5000 |
| FVH (80°-90°) | 62.5 | 0.5 | | | G1/100 |
| BL (0°-30°) | 596.8 | 5.0 | B2/1000 | | |
| BM (30°-60°) | 916.1 | 7.7 | B1/1000 | | |
| BH (60°-80°) | 471.6 | 3.9 | B1/500 | | G1/500 |
| BVH (80°-90°) | 79.4 | 0.7 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B2-U0-G2
 Type II Short





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 CATALOG NUMBER: GLEON-SA2D-722-U-AFL

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 56° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2655.6 | 2655.6 | 2655.6 | 2655.6 | 2655.6 | 2655.6 | 2655.6 | 2655.6 | 2655.6 | 2655.6 | 2655.6 |
| 2.5° | 3049.4 | 3077.4 | 3065.0 | 3022.2 | 2989.3 | 2942.8 | 2891.0 | 2875.3 | 2820.6 | 2759.3 | 2685.7 |
| 5° | 3532.1 | 3518.1 | 3497.9 | 3431.2 | 3360.9 | 3279.0 | 3149.0 | 3128.4 | 3006.6 | 2867.9 | 2721.5 |
| 7.5° | 3806.9 | 3805.7 | 3793.7 | 3754.7 | 3690.5 | 3583.5 | 3426.7 | 3402.4 | 3218.5 | 2995.5 | 2768.4 |
| 10° | 3767.0 | 3764.1 | 3783.9 | 3824.6 | 3843.9 | 3821.7 | 3689.6 | 3665.4 | 3439.5 | 3136.6 | 2822.7 |
| 12.5° | 3540.3 | 3541.9 | 3573.6 | 3659.2 | 3775.6 | 3915.5 | 3894.1 | 3882.2 | 3668.7 | 3296.3 | 2888.5 |
| 15° | 3363.8 | 3367.5 | 3392.6 | 3467.0 | 3604.5 | 3858.3 | 4018.4 | 4022.5 | 3890.4 | 3472.4 | 2965.5 |
| 17.5° | 3286.4 | 3294.2 | 3305.7 | 3358.0 | 3483.9 | 3744.4 | 4048.0 | 4070.3 | 4084.7 | 3655.1 | 3039.5 |
| 20° | 3311.1 | 3318.5 | 3321.8 | 3355.1 | 3458.4 | 3675.2 | 4027.5 | 4067.4 | 4233.6 | 3827.1 | 3113.6 |
| 22.5° | 3421.8 | 3426.3 | 3428.4 | 3437.0 | 3517.2 | 3695.0 | 4013.9 | 4055.9 | 4341.4 | 3981.4 | 3169.5 |
| 25° | 3605.3 | 3602.0 | 3588.8 | 3577.7 | 3631.6 | 3773.2 | 4045.2 | 4085.1 | 4429.1 | 4121.3 | 3206.2 |
| 27.5° | 3825.0 | 3820.9 | 3795.4 | 3764.9 | 3795.8 | 3895.0 | 4135.3 | 4166.9 | 4507.6 | 4252.1 | 3224.7 |
| 30° | 4088.8 | 4078.1 | 4029.9 | 3993.7 | 4005.7 | 4077.7 | 4283.8 | 4312.6 | 4629.0 | 4400.7 | 3242.8 |
| 32.5° | 4393.7 | 4382.1 | 4312.6 | 4252.5 | 4252.5 | 4312.6 | 4436.9 | 4460.7 | 4731.9 | 4568.5 | 3272.0 |
| 35° | 4775.5 | 4761.1 | 4670.6 | 4569.8 | 4541.4 | 4571.8 | 4645.5 | 4662.4 | 4917.1 | 4780.0 | 3325.1 |
| 37.5° | 5225.7 | 5206.3 | 5089.1 | 4954.1 | 4892.0 | 4890.3 | 4943.4 | 4978.0 | 5212.9 | 5057.8 | 3415.2 |
| 40° | 5677.0 | 5663.5 | 5561.0 | 5454.8 | 5333.1 | 5294.0 | 5375.8 | 5386.5 | 5599.7 | 5402.6 | 3530.4 |
| 42.5° | 6026.0 | 6023.5 | 6004.6 | 6018.6 | 5893.9 | 5814.9 | 5879.1 | 5887.7 | 6072.1 | 5775.8 | 3653.0 |
| 45° | 6210.3 | 6214.4 | 6306.2 | 6509.4 | 6555.5 | 6497.9 | 6529.6 | 6532.1 | 6611.9 | 6152.3 | 3765.4 |
| 47.5° | 6062.6 | 6084.0 | 6316.1 | 6770.7 | 7148.0 | 7339.4 | 7286.7 | 7317.2 | 7135.3 | 6475.7 | 3853.4 |
| 50° | 5486.9 | 5513.3 | 5908.3 | 6654.3 | 7424.6 | 8153.7 | 8126.1 | 8119.1 | 7557.5 | 6712.7 | 3901.1 |
| 52.5° | 4773.9 | 4794.4 | 5120.3 | 6049.0 | 7221.7 | 8603.8 | 8856.9 | 8820.7 | 7932.7 | 6890.1 | 3910.2 |
| 55° | 3688.0 | 3720.1 | 4032.4 | 4840.9 | 6401.2 | 8431.8 | 9394.3 | 9361.7 | 8274.6 | 6983.0 | 3899.5 |
| 57° | 2621.9 | 2655.6 | 2965.9 | 3694.6 | 5384.9 | 7836.4 | 9447.7 | 9482.3 | 8459.4 | 6998.7 | 3911.4 |
| 57.5° | 2339.6 | 2374.2 | 2681.5 | 3389.3 | 5068.1 | 7621.2 | 9401.7 | 9459.3 | 8492.7 | 6996.2 | 3918.0 |
| 60° | 1178.0 | 1191.2 | 1387.1 | 1891.9 | 3203.7 | 6161.3 | 8800.5 | 8949.0 | 8522.8 | 6875.2 | 3946.4 |
| 62.5° | 732.4 | 723.0 | 716.8 | 871.5 | 1558.6 | 4085.9 | 7559.9 | 7845.9 | 7947.9 | 6582.3 | 3877.7 |
| 65° | 643.9 | 626.3 | 558.4 | 546.0 | 688.4 | 1984.5 | 5693.1 | 6049.0 | 6719.7 | 6120.6 | 3713.9 |
| 67.5° | 604.9 | 587.6 | 511.0 | 465.0 | 465.4 | 786.7 | 3534.5 | 3935.3 | 5234.7 | 5340.0 | 3327.6 |
| 70° | 564.5 | 548.9 | 477.3 | 423.0 | 396.2 | 435.7 | 1626.1 | 1930.2 | 3412.3 | 4197.4 | 2781.1 |
| 72.5° | 512.7 | 502.0 | 434.1 | 378.1 | 349.7 | 326.3 | 622.6 | 735.3 | 1975.5 | 2819.0 | 1931.4 |
| 75° | 458.4 | 448.5 | 390.5 | 337.0 | 302.4 | 256.8 | 350.6 | 377.7 | 1003.6 | 1442.2 | 950.9 |
| 77.5° | 398.7 | 393.0 | 347.3 | 297.9 | 270.3 | 212.7 | 248.1 | 261.3 | 430.4 | 618.4 | 476.9 |
| 80° | 317.2 | 328.4 | 303.7 | 265.4 | 239.9 | 170.3 | 175.7 | 184.3 | 250.6 | 302.0 | 270.7 |
| 82.5° | 206.6 | 225.9 | 237.8 | 215.6 | 197.5 | 134.1 | 126.3 | 130.0 | 163.4 | 184.3 | 117.7 |
| 85° | 86.0 | 96.7 | 156.4 | 141.1 | 131.3 | 97.9 | 84.8 | 86.4 | 101.2 | 104.9 | 48.1 |
| 87.5° | 38.3 | 40.7 | 68.7 | 64.6 | 55.5 | 33.7 | 36.2 | 39.5 | 53.9 | 51.0 | 18.5 |
| 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: P321176
 CATALOG NUMBER: GLEON-SA2D-722-U-AFL

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2655.6 | 2655.6 | 2655.6 | 2655.6 | 2655.6 | 2655.6 | 2655.6 | 2655.6 | 2655.6 | 2655.6 | 2655.6 |
| 2.5° | 2658.1 | 2623.5 | 2564.3 | 2498.9 | 2445.4 | 2402.6 | 2359.4 | 2329.7 | 2295.2 | 2276.7 | 2267.2 |
| 5° | 2660.1 | 2592.3 | 2467.6 | 2339.6 | 2225.2 | 2120.7 | 2021.1 | 1944.6 | 1873.0 | 1834.3 | 1823.6 |
| 7.5° | 2668.8 | 2566.7 | 2365.1 | 2154.5 | 1951.2 | 1765.6 | 1622.4 | 1532.7 | 1468.1 | 1439.3 | 1431.1 |
| 10° | 2675.8 | 2536.7 | 2238.4 | 1926.5 | 1650.0 | 1462.0 | 1350.9 | 1300.7 | 1278.4 | 1274.7 | 1271.0 |
| 12.5° | 2692.2 | 2505.8 | 2105.1 | 1688.7 | 1415.9 | 1285.8 | 1247.2 | 1243.9 | 1250.0 | 1259.1 | 1259.1 |
| 15° | 2718.2 | 2475.4 | 1952.8 | 1484.6 | 1266.9 | 1221.2 | 1229.1 | 1247.2 | 1264.0 | 1278.0 | 1280.1 |
| 17.5° | 2737.1 | 2438.0 | 1789.1 | 1321.2 | 1187.5 | 1199.8 | 1227.8 | 1253.3 | 1270.6 | 1284.2 | 1285.4 |
| 20° | 2750.7 | 2379.9 | 1614.2 | 1196.6 | 1141.8 | 1180.1 | 1215.1 | 1237.7 | 1249.6 | 1263.2 | 1265.3 |
| 22.5° | 2743.7 | 2302.2 | 1459.1 | 1107.3 | 1104.8 | 1151.3 | 1184.6 | 1211.8 | 1202.7 | 1189.6 | 1198.2 |
| 25° | 2709.9 | 2195.2 | 1299.4 | 1040.6 | 1065.7 | 1112.6 | 1153.8 | 1135.7 | 1105.2 | 1099.4 | 1102.7 |
| 27.5° | 2649.9 | 2058.6 | 1151.7 | 978.9 | 1020.4 | 1076.8 | 1074.3 | 1056.2 | 1045.5 | 1038.1 | 1042.7 |
| 30° | 2585.3 | 1910.5 | 1022.5 | 925.0 | 970.2 | 1016.7 | 1007.3 | 1006.9 | 996.2 | 984.2 | 990.0 |
| 32.5° | 2521.5 | 1761.5 | 920.0 | 880.5 | 932.4 | 938.6 | 959.1 | 965.3 | 944.3 | 919.2 | 917.6 |
| 35° | 2465.9 | 1620.8 | 842.3 | 840.2 | 886.7 | 887.5 | 917.6 | 908.9 | 856.7 | 830.8 | 830.8 |
| 37.5° | 2424.4 | 1480.5 | 783.0 | 804.0 | 826.6 | 848.0 | 863.3 | 827.5 | 818.8 | 804.4 | 804.0 |
| 40° | 2406.3 | 1357.0 | 746.0 | 776.4 | 784.3 | 811.4 | 772.3 | 786.3 | 790.4 | 783.0 | 783.0 |
| 42.5° | 2387.3 | 1249.6 | 713.9 | 755.5 | 754.2 | 750.5 | 730.8 | 748.9 | 765.3 | 765.7 | 764.5 |
| 45° | 2368.4 | 1157.1 | 685.5 | 710.6 | 727.9 | 688.0 | 691.7 | 711.0 | 734.1 | 742.3 | 742.3 |
| 47.5° | 2347.4 | 1083.8 | 659.6 | 663.3 | 690.0 | 663.3 | 660.4 | 675.2 | 702.4 | 715.5 | 718.4 |
| 50° | 2301.3 | 1018.0 | 630.0 | 621.7 | 629.1 | 638.2 | 640.7 | 647.7 | 677.7 | 698.7 | 703.6 |
| 52.5° | 2237.6 | 959.1 | 592.1 | 583.5 | 583.5 | 617.6 | 629.1 | 631.2 | 656.7 | 681.8 | 686.7 |
| 55° | 2184.5 | 921.7 | 553.0 | 551.4 | 549.7 | 595.8 | 615.6 | 618.8 | 636.5 | 656.3 | 658.8 |
| 57° | 2188.2 | 918.8 | 523.0 | 524.6 | 524.2 | 573.6 | 602.8 | 609.8 | 618.8 | 635.7 | 638.6 |
| 57.5° | 2190.3 | 920.9 | 516.4 | 517.2 | 516.8 | 567.4 | 599.1 | 606.9 | 613.9 | 631.6 | 634.5 |
| 60° | 2221.1 | 926.2 | 489.6 | 480.6 | 482.7 | 534.5 | 578.1 | 588.0 | 592.5 | 616.0 | 619.7 |
| 62.5° | 2175.4 | 902.4 | 468.3 | 446.4 | 446.4 | 499.9 | 548.9 | 564.5 | 571.5 | 603.2 | 609.4 |
| 65° | 2042.9 | 835.3 | 443.2 | 407.8 | 411.9 | 465.4 | 513.9 | 539.4 | 550.1 | 589.6 | 596.2 |
| 67.5° | 1838.4 | 757.5 | 416.4 | 373.2 | 377.3 | 429.2 | 477.7 | 505.3 | 522.2 | 574.8 | 580.2 |
| 70° | 1572.2 | 662.5 | 380.2 | 336.6 | 341.5 | 389.7 | 434.9 | 466.2 | 491.3 | 560.8 | 562.5 |
| 72.5° | 1159.1 | 543.1 | 329.6 | 296.3 | 301.6 | 343.6 | 391.7 | 427.9 | 461.7 | 525.9 | 525.0 |
| 75° | 689.2 | 424.6 | 273.6 | 255.5 | 259.2 | 298.3 | 352.6 | 396.7 | 447.3 | 512.3 | 520.1 |
| 77.5° | 418.1 | 319.7 | 223.0 | 214.0 | 218.5 | 258.4 | 324.6 | 371.6 | 441.1 | 483.1 | 480.6 |
| 80° | 252.6 | 228.4 | 178.2 | 172.4 | 176.9 | 221.0 | 300.4 | 352.6 | 385.5 | 412.7 | 412.7 |
| 82.5° | 132.1 | 139.5 | 130.8 | 126.3 | 132.5 | 179.4 | 273.2 | 307.8 | 340.7 | 292.6 | 273.2 |
| 85° | 53.9 | 72.8 | 79.4 | 79.0 | 82.7 | 124.3 | 235.8 | 263.3 | 219.7 | 208.6 | 213.6 |
| 87.5° | 18.1 | 30.9 | 38.7 | 33.3 | 35.0 | 78.2 | 163.4 | 127.1 | 151.0 | 105.3 | 100.0 |
| 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: SP1-1908-441-10-R4

Test Date: 10/25/2019

Luminaire Tested: SA1C-722-U-5WQ

Data in this report applies to families of products SA1C-722-U-5WQ.

Test Information

Test Method: LM-79-2008 Report
 Number: SP1-1908-441-10-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-722-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): 2237
 CIE u': 0.2876
 CIE v': 0.5346
 Duv: -0.0006
 CIE x: 0.5005
 CIE y: 0.4134
 CIE z: 0.0860
 Peak Wavelength (nm): 603
 Dominant Wavelength (nm): 587
 Purity: 74.5
 Rf: 69.8
 Rg: 99.2

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 72.0 | | |
| R1: | 68.9 | R9: | -17.4 |
| R2: | 83.0 | R10: | 61.3 |
| R3: | 95.2 | R11: | 59.8 |
| R4: | 66.2 | R12: | 50.5 |
| R5: | 65.9 | R13: | 71.1 |
| R6: | 76.3 | R14: | 96.9 |
| R7: | 76.7 | | |
| R8: | 43.8 | | |



Test Conditions

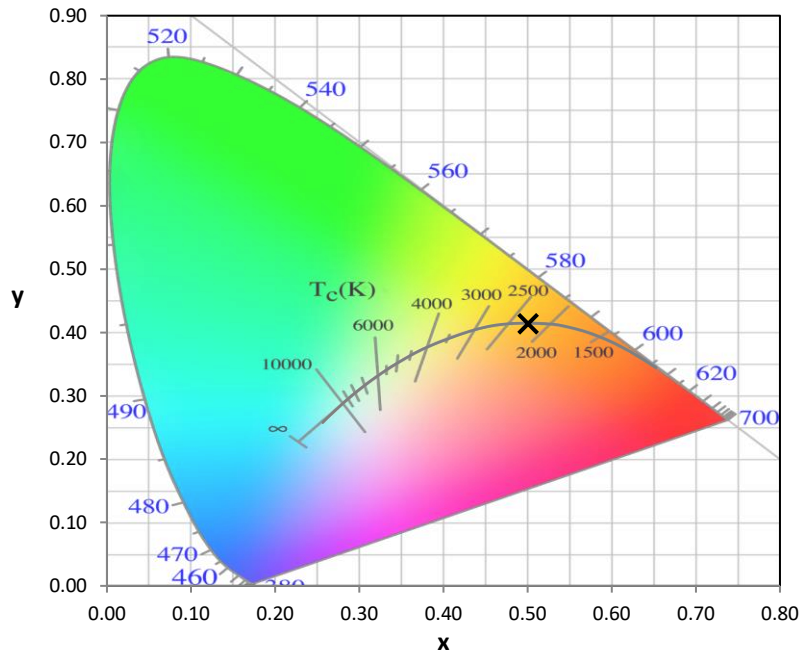
Stabilization Time: 71M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 24.7/41%
 Sphere Temperature (°C): 25.6

REPORT NUMBER: SP1-1908-441-10-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: SP1-1908-441-10-R4

CIE 1931 Chromaticity Diagram



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



Point lies inside the ANSI 2200K 4-step quadrangle

REPORT NUMBER: SP1-1908-441-10-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 | 1768 | NR | 490 | 5206 | NR | 620 | 130919 | NR | 750 | 8553 | NR | 880 | 2713 | NR |
| 365 | 1569 | NR | 495 | 7286 | NR | 625 | 125335 | NR | 755 | 7696 | NR | 885 | 2316 | NR |
| 370 | 1594 | NR | 500 | 10654 | NR | 630 | 118388 | NR | 760 | 6978 | NR | 890 | 2539 | NR |
| 375 | 1744 | NR | 505 | 15189 | NR | 635 | 111855 | NR | 765 | 6377 | NR | 895 | 1933 | NR |
| 380 | 1659 | NR | 510 | 20541 | NR | 640 | 104062 | NR | 770 | 5600 | NR | 900 | 2216 | NR |
| 385 | 1504 | NR | 515 | 26492 | NR | 645 | 96365 | NR | 775 | 5000 | NR | 905 | 2067 | NR |
| 390 | 1541 | NR | 520 | 32294 | NR | 650 | 88651 | NR | 780 | 4709 | NR | 910 | 1959 | NR |
| 395 | 1355 | NR | 525 | 38123 | NR | 655 | 81152 | NR | 785 | 4305 | NR | 915 | 1874 | NR |
| 400 | 1243 | NR | 530 | 43232 | NR | 660 | 73523 | NR | 790 | 4040 | NR | 920 | 1484 | NR |
| 405 | 1417 | NR | 535 | 48012 | NR | 665 | 66123 | NR | 795 | 3642 | NR | 925 | 1914 | NR |
| 410 | 2147 | NR | 540 | 52623 | NR | 670 | 58677 | NR | 800 | 3594 | NR | 930 | 1948 | NR |
| 415 | 3837 | NR | 545 | 57516 | NR | 675 | 52349 | NR | 805 | 3190 | NR | 935 | 2079 | NR |
| 420 | 7159 | NR | 550 | 62613 | NR | 680 | 46159 | NR | 810 | 3241 | NR | 940 | 2263 | NR |
| 425 | 12599 | NR | 555 | 68554 | NR | 685 | 40525 | NR | 815 | 2732 | NR | 945 | 1688 | NR |
| 430 | 19019 | NR | 560 | 75325 | NR | 690 | 35615 | NR | 820 | 2612 | NR | 950 | 1560 | NR |
| 435 | 24875 | NR | 565 | 82533 | NR | 695 | 31158 | NR | 825 | 2966 | NR | 955 | 2826 | NR |
| 440 | 29103 | NR | 570 | 90909 | NR | 700 | 27409 | NR | 830 | 2574 | NR | 960 | 1477 | NR |
| 445 | 29901 | NR | 575 | 99621 | NR | 705 | 24204 | NR | 835 | 2633 | NR | 965 | 1568 | NR |
| 450 | 24862 | NR | 580 | 108484 | NR | 710 | 21558 | NR | 840 | 2526 | NR | 970 | 2030 | NR |
| 455 | 15942 | NR | 585 | 116679 | NR | 715 | 19222 | NR | 845 | 2631 | NR | 975 | 1986 | NR |
| 460 | 9916 | NR | 590 | 123752 | NR | 720 | 17310 | NR | 850 | 2079 | NR | 980 | 2540 | NR |
| 465 | 7051 | NR | 595 | 129324 | NR | 725 | 15280 | NR | 855 | 2309 | NR | 985 | 1139 | NR |
| 470 | 5227 | NR | 600 | 134082 | NR | 730 | 13282 | NR | 860 | 2528 | NR | 990 | 2018 | NR |
| 475 | 4257 | NR | 605 | 135698 | NR | 735 | 11753 | NR | 865 | 2121 | NR | 995 | 3445 | NR |
| 480 | 4052 | NR | 610 | 135144 | NR | 740 | 10654 | NR | 870 | 2751 | NR | 1000 | 3704 | NR |
| 485 | 4298 | NR | 615 | 134180 | NR | 745 | 9451 | NR | 875 | 2317 | NR | | | |

REPORT NUMBER: SP1-1908-441-10-R4

Scotopic Flux vs. Wavelength



Scotopic Lumens: 4696.9

S/P: 0.85

| 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 | 1768 | NR | 490 | 5206 | NR | 620 | 130919 | NR | 750 | 8553 | NR | 880 | 2713 | NR |
| 365 | 1569 | NR | 495 | 7286 | NR | 625 | 125335 | NR | 755 | 7696 | NR | 885 | 2316 | NR |
| 370 | 1594 | NR | 500 | 10654 | NR | 630 | 118388 | NR | 760 | 6978 | NR | 890 | 2539 | NR |
| 375 | 1744 | NR | 505 | 15189 | NR | 635 | 111855 | NR | 765 | 6377 | NR | 895 | 1933 | NR |
| 380 | 1659 | NR | 510 | 20541 | NR | 640 | 104062 | NR | 770 | 5600 | NR | 900 | 2216 | NR |
| 385 | 1504 | NR | 515 | 26492 | NR | 645 | 96365 | NR | 775 | 5000 | NR | 905 | 2067 | NR |
| 390 | 1541 | NR | 520 | 32294 | NR | 650 | 88651 | NR | 780 | 4709 | NR | 910 | 1959 | NR |
| 395 | 1355 | NR | 525 | 38123 | NR | 655 | 81152 | NR | 785 | 4305 | NR | 915 | 1874 | NR |
| 400 | 1243 | NR | 530 | 43232 | NR | 660 | 73523 | NR | 790 | 4040 | NR | 920 | 1484 | NR |
| 405 | 1417 | NR | 535 | 48012 | NR | 665 | 66123 | NR | 795 | 3642 | NR | 925 | 1914 | NR |
| 410 | 2147 | NR | 540 | 52623 | NR | 670 | 58677 | NR | 800 | 3594 | NR | 930 | 1948 | NR |
| 415 | 3837 | NR | 545 | 57516 | NR | 675 | 52349 | NR | 805 | 3190 | NR | 935 | 2079 | NR |
| 420 | 7159 | NR | 550 | 62613 | NR | 680 | 46159 | NR | 810 | 3241 | NR | 940 | 2263 | NR |
| 425 | 12599 | NR | 555 | 68554 | NR | 685 | 40525 | NR | 815 | 2732 | NR | 945 | 1688 | NR |
| 430 | 19019 | NR | 560 | 75325 | NR | 690 | 35615 | NR | 820 | 2612 | NR | 950 | 1560 | NR |
| 435 | 24875 | NR | 565 | 82533 | NR | 695 | 31158 | NR | 825 | 2966 | NR | 955 | 2826 | NR |
| 440 | 29103 | NR | 570 | 90909 | NR | 700 | 27409 | NR | 830 | 2574 | NR | 960 | 1477 | NR |
| 445 | 29901 | NR | 575 | 99621 | NR | 705 | 24204 | NR | 835 | 2633 | NR | 965 | 1568 | NR |
| 450 | 24862 | NR | 580 | 108484 | NR | 710 | 21558 | NR | 840 | 2526 | NR | 970 | 2030 | NR |
| 455 | 15942 | NR | 585 | 116679 | NR | 715 | 19222 | NR | 845 | 2631 | NR | 975 | 1986 | NR |
| 460 | 9916 | NR | 590 | 123752 | NR | 720 | 17310 | NR | 850 | 2079 | NR | 980 | 2540 | NR |
| 465 | 7051 | NR | 595 | 129324 | NR | 725 | 15280 | NR | 855 | 2309 | NR | 985 | 1139 | NR |
| 470 | 5227 | NR | 600 | 134082 | NR | 730 | 13282 | NR | 860 | 2528 | NR | 990 | 2018 | NR |
| 475 | 4257 | NR | 605 | 135698 | NR | 735 | 11753 | NR | 865 | 2121 | NR | 995 | 3445 | NR |
| 480 | 4052 | NR | 610 | 135144 | NR | 740 | 10654 | NR | 870 | 2751 | NR | 1000 | 3704 | NR |
| 485 | 4298 | NR | 615 | 134180 | NR | 745 | 9451 | NR | 875 | 2317 | NR | | | |

REPORT NUMBER: SP1-1908-441-10-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 1470.8 M/P: 0.27

| 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 | 1768 | NR | 490 | 5206 | NR | 620 | 130919 | NR | 750 | 8553 | NR | 880 | 2713 | NR |
| 365 | 1569 | NR | 495 | 7286 | NR | 625 | 125335 | NR | 755 | 7696 | NR | 885 | 2316 | NR |
| 370 | 1594 | NR | 500 | 10654 | NR | 630 | 118388 | NR | 760 | 6978 | NR | 890 | 2539 | NR |
| 375 | 1744 | NR | 505 | 15189 | NR | 635 | 111855 | NR | 765 | 6377 | NR | 895 | 1933 | NR |
| 380 | 1659 | NR | 510 | 20541 | NR | 640 | 104062 | NR | 770 | 5600 | NR | 900 | 2216 | NR |
| 385 | 1504 | NR | 515 | 26492 | NR | 645 | 96365 | NR | 775 | 5000 | NR | 905 | 2067 | NR |
| 390 | 1541 | NR | 520 | 32294 | NR | 650 | 88651 | NR | 780 | 4709 | NR | 910 | 1959 | NR |
| 395 | 1355 | NR | 525 | 38123 | NR | 655 | 81152 | NR | 785 | 4305 | NR | 915 | 1874 | NR |
| 400 | 1243 | NR | 530 | 43232 | NR | 660 | 73523 | NR | 790 | 4040 | NR | 920 | 1484 | NR |
| 405 | 1417 | NR | 535 | 48012 | NR | 665 | 66123 | NR | 795 | 3642 | NR | 925 | 1914 | NR |
| 410 | 2147 | NR | 540 | 52623 | NR | 670 | 58677 | NR | 800 | 3594 | NR | 930 | 1948 | NR |
| 415 | 3837 | NR | 545 | 57516 | NR | 675 | 52349 | NR | 805 | 3190 | NR | 935 | 2079 | NR |
| 420 | 7159 | NR | 550 | 62613 | NR | 680 | 46159 | NR | 810 | 3241 | NR | 940 | 2263 | NR |
| 425 | 12599 | NR | 555 | 68554 | NR | 685 | 40525 | NR | 815 | 2732 | NR | 945 | 1688 | NR |
| 430 | 19019 | NR | 560 | 75325 | NR | 690 | 35615 | NR | 820 | 2612 | NR | 950 | 1560 | NR |
| 435 | 24875 | NR | 565 | 82533 | NR | 695 | 31158 | NR | 825 | 2966 | NR | 955 | 2826 | NR |
| 440 | 29103 | NR | 570 | 90909 | NR | 700 | 27409 | NR | 830 | 2574 | NR | 960 | 1477 | NR |
| 445 | 29901 | NR | 575 | 99621 | NR | 705 | 24204 | NR | 835 | 2633 | NR | 965 | 1568 | NR |
| 450 | 24862 | NR | 580 | 108484 | NR | 710 | 21558 | NR | 840 | 2526 | NR | 970 | 2030 | NR |
| 455 | 15942 | NR | 585 | 116679 | NR | 715 | 19222 | NR | 845 | 2631 | NR | 975 | 1986 | NR |
| 460 | 9916 | NR | 590 | 123752 | NR | 720 | 17310 | NR | 850 | 2079 | NR | 980 | 2540 | NR |
| 465 | 7051 | NR | 595 | 129324 | NR | 725 | 15280 | NR | 855 | 2309 | NR | 985 | 1139 | NR |
| 470 | 5227 | NR | 600 | 134082 | NR | 730 | 13282 | NR | 860 | 2528 | NR | 990 | 2018 | NR |
| 475 | 4257 | NR | 605 | 135698 | NR | 735 | 11753 | NR | 865 | 2121 | NR | 995 | 3445 | NR |
| 480 | 4052 | NR | 610 | 135144 | NR | 740 | 10654 | NR | 870 | 2751 | NR | 1000 | 3704 | NR |
| 485 | 4298 | NR | 615 | 134180 | NR | 745 | 9451 | NR | 875 | 2317 | NR | | | |

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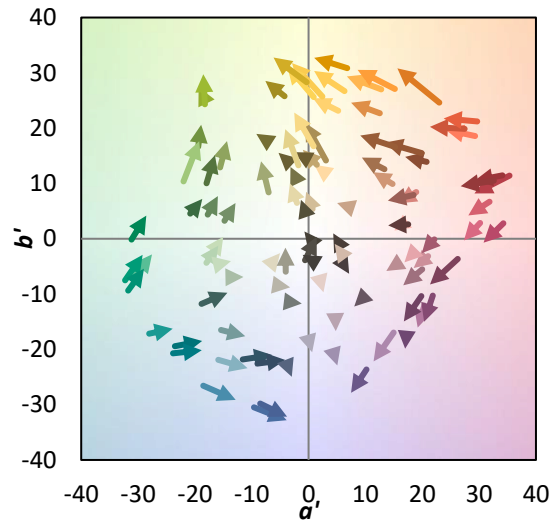
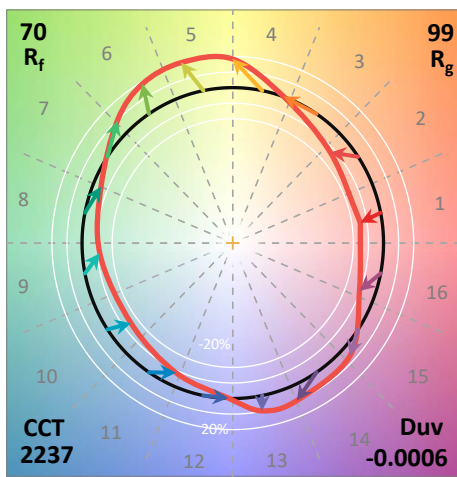
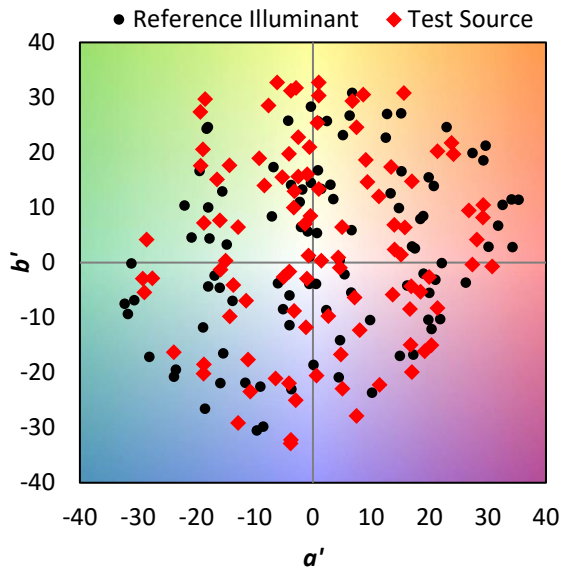
TM-30-18

Summary

$R_f = 69.8$
 $R_g = 99.2$
 $CIE R_a = 72.0$
 $R_9 = -17.4$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 87 | CES26 = 56 | CES51 = 74 | CES76 = 56 |
| CES02 = 65 | CES27 = 76 | CES52 = 76 | CES77 = 81 |
| CES03 = 32 | CES28 = 83 | CES53 = 65 | CES78 = 63 |
| CES04 = 72 | CES29 = 46 | CES54 = 78 | CES79 = 84 |
| CES05 = 52 | CES30 = 48 | CES55 = 75 | CES80 = 84 |
| CES06 = 52 | CES31 = 51 | CES56 = 65 | CES81 = 63 |
| CES07 = 44 | CES32 = 51 | CES57 = 62 | CES82 = 92 |
| CES08 = 42 | CES33 = 53 | CES58 = 66 | CES83 = 83 |
| CES09 = 29 | CES34 = 70 | CES59 = 84 | CES84 = 92 |
| CES10 = 78 | CES35 = 85 | CES60 = 90 | CES85 = 81 |
| CES11 = 61 | CES36 = 78 | CES61 = 84 | CES86 = 56 |
| CES12 = 68 | CES37 = 80 | CES62 = 70 | CES87 = 78 |
| CES13 = 45 | CES38 = 53 | CES63 = 68 | CES88 = 72 |
| CES14 = 75 | CES39 = 90 | CES64 = 69 | CES89 = 62 |
| CES15 = 72 | CES40 = 84 | CES65 = 67 | CES90 = 67 |
| CES16 = 49 | CES41 = 75 | CES66 = 64 | CES91 = 90 |
| CES17 = 51 | CES42 = 79 | CES67 = 63 | CES92 = 67 |
| CES18 = 57 | CES43 = 64 | CES68 = 69 | CES93 = 79 |
| CES19 = 74 | CES44 = 98 | CES69 = 80 | CES94 = 52 |
| CES20 = 68 | CES45 = 73 | CES70 = 63 | CES95 = 76 |
| CES21 = 89 | CES46 = 67 | CES71 = 63 | CES96 = 78 |
| CES22 = 81 | CES47 = 60 | CES72 = 87 | CES97 = 77 |
| CES23 = 92 | CES48 = 48 | CES73 = 56 | CES98 = 71 |
| CES24 = 92 | CES49 = 64 | CES74 = 87 | CES99 = 65 |
| CES25 = 74 | CES50 = 74 | CES75 = 66 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)