

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: P634422

Luminaire Tested: GWS-SA3B-760-U-T2R-W-GRSBK

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P634422
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-12)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA3B-760-U-T2R-W-GRSBK
Description: GALLEON WALL SLIM LUMINAIRE. (3) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II ROADWAY OPTICS W/ FACTORY INSTALLED GLARE SHIELD, BK
Light Source: (48) 5700K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7034.6 lumens
Efficiency: N/A
Efficacy: 103.0 lumens/watt
Luminous Opening: Rectangular (W 1.5' x L: 0.5' x H: 0')
IES Classification: Type II - Short
BUG Rating: B1 - U0 - G0

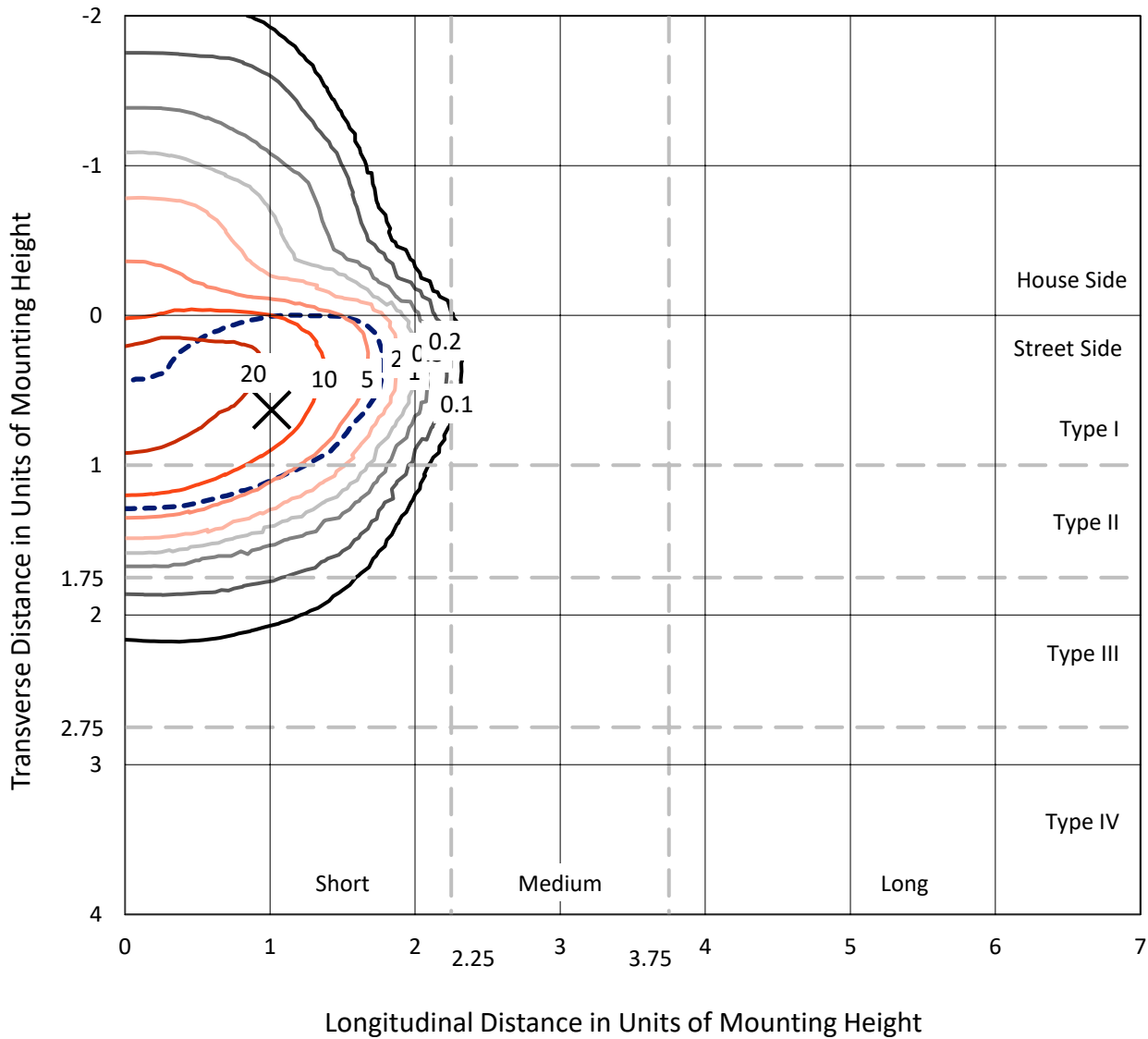
Input Watts (W): 68.3
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P634422
 CATALOG NUMBER: GWS-SA3B-760-U-T2R-W-GRSBK

Iso-Footcandle Lines of Horizontal Illumination

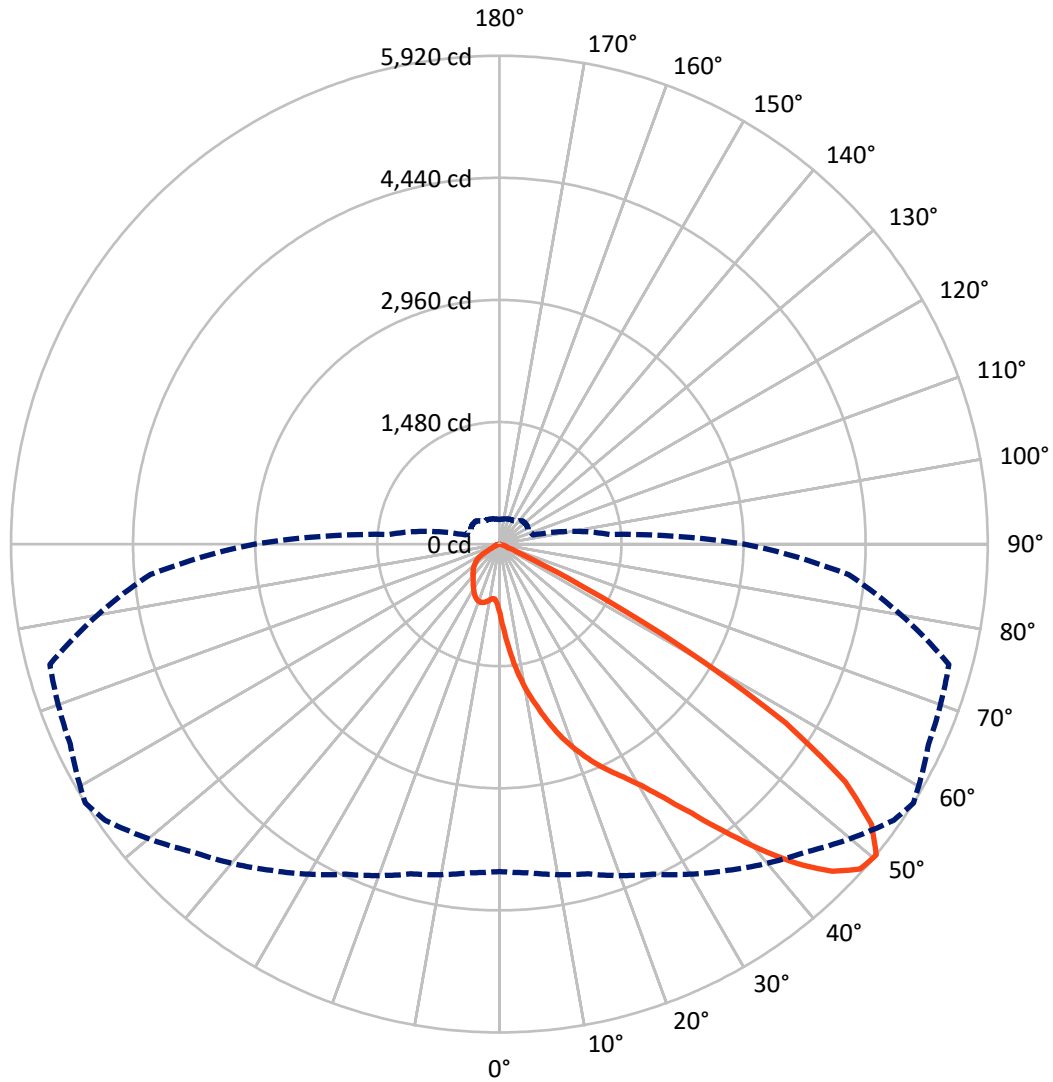
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 25.8 fc
 Type II - Short - N/A

REPORT NUMBER: P634422
CATALOG NUMBER: GWS-SA3B-760-U-T2R-W-GRSBK

Luminous Intensity Polar Plot



— Vertical Plane Through 58-Deg Lateral - - - Horizontal Cone Through 50-Deg Vertical

REPORT NUMBER: P634422

CATALOG NUMBER: GWS-SA3B-760-U-T2R-W-GRSBK

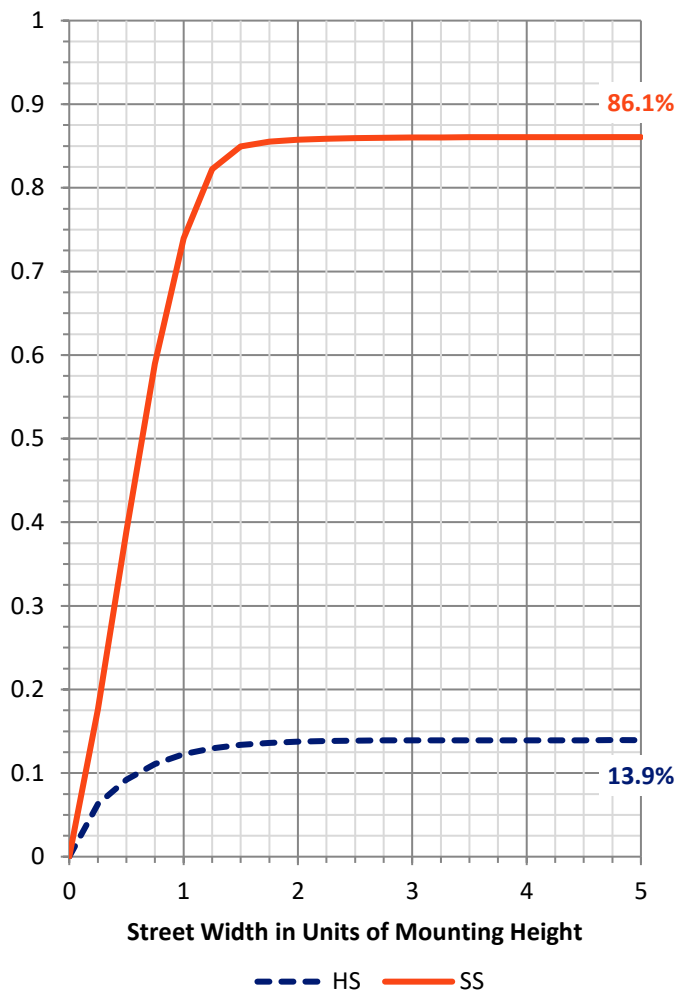
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 985.3 | 0.0 | 985.3 |
| | % Fixture | 14.0 | 0.0 | 14.0 |
| Street Side | Lumens | 6049.3 | 0.0 | 6049.3 |
| | % Fixture | 86.0 | 0.0 | 86.0 |
| Total | Lumens | 7034.6 | 0.0 | 7034.6 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 104.1 | 1.5 |
| 10°-20° | 412.1 | 5.9 |
| 20°-30° | 833.9 | 11.9 |
| 30°-40° | 1475.2 | 21.0 |
| 40°-50° | 2150.6 | 30.6 |
| 50°-60° | 1723.7 | 24.5 |
| 60°-70° | 310.5 | 4.4 |
| 70°-80° | 24.5 | 0.3 |
| 80°-90° | 0.0 | 0.0 |
| 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° | 7034.6 | 100.0 |
| 0°-180° | 7034.6 | 100.0 |

Coefficient of Utilization



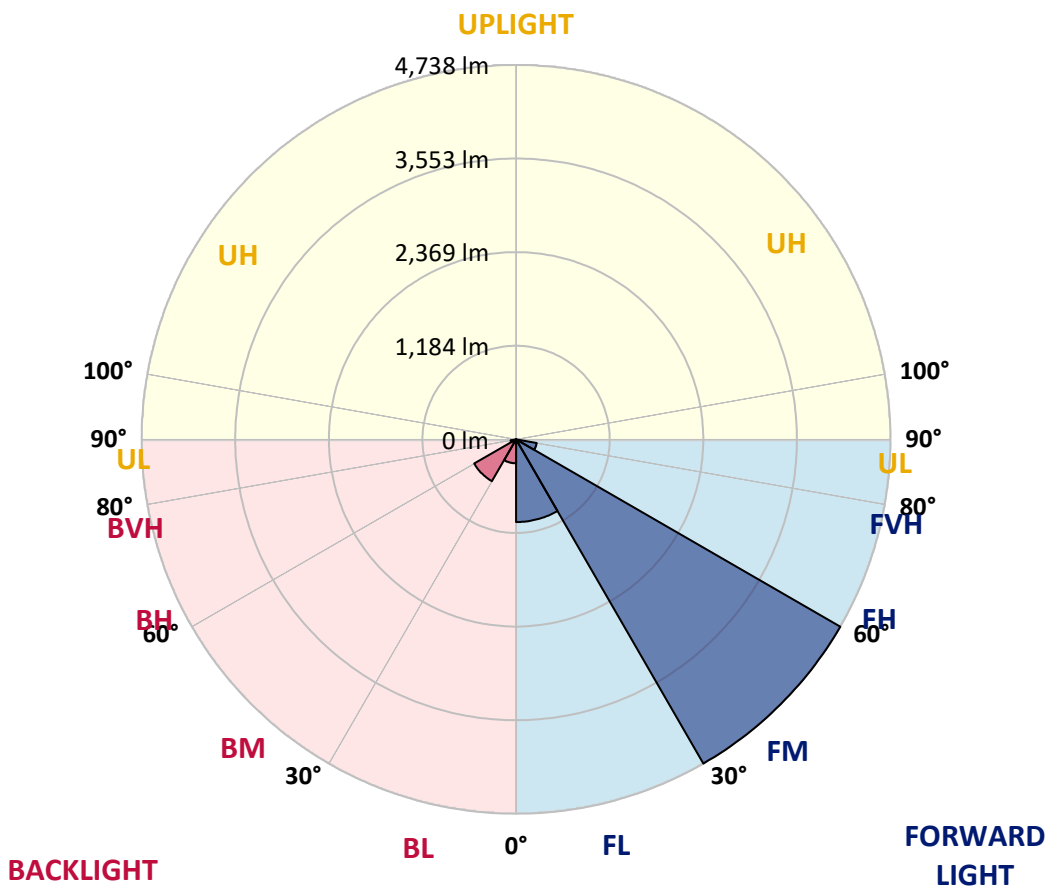
REPORT NUMBER: P634422

CATALOG NUMBER: GWS-SA3B-760-U-T2R-W-GRSBK

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|--------|
| | | | B | U | G |
| FL (0°-30°) | 1046.7 | 14.9 | | | |
| FM (30°-60°) | 4737.6 | 67.3 | | | |
| FH (60°-80°) | 265.0 | 3.8 | | | G0/660 |
| FVH (80°-90°) | 0.0 | 0.0 | | | G0/10 |
| BL (0°-30°) | 303.3 | 4.3 | B1/500 | | |
| BM (30°-60°) | 611.9 | 8.7 | B1/1000 | | |
| BH (60°-80°) | 70.0 | 1.0 | B0/110 | | G0/110 |
| BVH (80°-90°) | 0.0 | 0.0 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G0
 Type II Short





REPORT NUMBER: P634422

CATALOG NUMBER: GWS-SA3B-760-U-T2R-W-GRSBK

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 58° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 840.3 | 840.3 | 840.3 | 840.3 | 840.3 | 840.3 | 840.3 | 840.3 | 840.3 | 840.3 | 840.3 |
| 2.5° | 1243.5 | 1223.9 | 1212.6 | 1203.6 | 1163.7 | 1100.6 | 1059.2 | 1037.4 | 1001.3 | 940.3 | 887.7 |
| 5° | 1622.6 | 1608.3 | 1582.0 | 1563.9 | 1512.8 | 1423.3 | 1330.7 | 1293.9 | 1211.9 | 1074.2 | 950.9 |
| 7.5° | 1873.9 | 1863.3 | 1853.6 | 1829.5 | 1781.3 | 1700.1 | 1597.8 | 1559.4 | 1433.0 | 1237.5 | 1035.1 |
| 10° | 2067.2 | 2058.9 | 2047.6 | 2046.9 | 2009.3 | 1936.3 | 1836.3 | 1796.4 | 1659.5 | 1415.0 | 1134.4 |
| 12.5° | 2237.2 | 2230.4 | 2228.2 | 2249.2 | 2225.2 | 2171.0 | 2062.7 | 2013.0 | 1867.9 | 1596.3 | 1244.2 |
| 15° | 2353.8 | 2352.3 | 2362.1 | 2403.5 | 2417.0 | 2392.2 | 2301.2 | 2247.7 | 2080.7 | 1778.3 | 1365.3 |
| 17.5° | 2407.2 | 2411.7 | 2430.5 | 2502.0 | 2562.2 | 2583.2 | 2513.3 | 2468.2 | 2292.1 | 1962.6 | 1494.7 |
| 20° | 2498.2 | 2496.7 | 2508.0 | 2575.7 | 2649.4 | 2724.7 | 2703.6 | 2665.2 | 2505.8 | 2157.5 | 1638.4 |
| 22.5° | 2754.8 | 2732.9 | 2708.9 | 2719.4 | 2745.7 | 2833.8 | 2872.9 | 2853.3 | 2726.2 | 2357.6 | 1786.6 |
| 25° | 3148.9 | 3126.4 | 3048.9 | 2973.7 | 2924.0 | 2963.9 | 3017.3 | 3027.1 | 2945.1 | 2562.9 | 1941.6 |
| 27.5° | 3567.2 | 3546.9 | 3459.6 | 3346.8 | 3204.6 | 3135.4 | 3175.3 | 3194.8 | 3160.2 | 2807.4 | 2106.3 |
| 30° | 3959.1 | 3932.0 | 3836.5 | 3696.6 | 3531.8 | 3425.8 | 3380.6 | 3394.2 | 3414.5 | 3097.0 | 2299.6 |
| 32.5° | 4299.1 | 4278.8 | 4164.5 | 4017.1 | 3858.3 | 3747.7 | 3642.4 | 3665.0 | 3714.6 | 3451.4 | 2547.1 |
| 35° | 4587.3 | 4576.7 | 4455.6 | 4308.9 | 4141.2 | 4084.8 | 3994.5 | 3999.0 | 4048.6 | 3879.4 | 2848.8 |
| 37.5° | 4837.8 | 4819.7 | 4709.9 | 4573.7 | 4440.6 | 4431.5 | 4406.7 | 4409.0 | 4434.6 | 4378.1 | 3195.6 |
| 40° | 4995.7 | 4979.2 | 4901.0 | 4816.7 | 4721.9 | 4723.4 | 4852.1 | 4861.8 | 4832.5 | 4867.9 | 3561.9 |
| 42.5° | 5055.2 | 5043.1 | 5001.0 | 5001.8 | 4992.0 | 5036.4 | 5277.8 | 5295.9 | 5190.6 | 5252.3 | 3874.9 |
| 45° | 4952.1 | 4946.8 | 4949.9 | 5058.2 | 5175.5 | 5312.4 | 5626.1 | 5657.7 | 5508.8 | 5507.3 | 4119.4 |
| 47.5° | 4619.6 | 4609.1 | 4697.1 | 4881.4 | 5153.0 | 5419.3 | 5836.8 | 5885.7 | 5731.4 | 5653.2 | 4272.8 |
| 50° | 3968.2 | 3998.2 | 4137.4 | 4414.2 | 4827.2 | 5272.6 | 5834.5 | 5919.5 | 5739.7 | 5640.4 | 4247.2 |
| 52.5° | 2874.4 | 2868.4 | 3173.0 | 3553.7 | 4056.2 | 4803.2 | 5524.6 | 5648.7 | 5538.9 | 5514.8 | 4190.1 |
| 55° | 1563.9 | 1618.9 | 1824.2 | 2328.2 | 2955.6 | 3914.7 | 4816.7 | 5087.5 | 5214.6 | 5468.9 | 4293.1 |
| 57.5° | 574.7 | 598.8 | 727.4 | 1084.0 | 1564.7 | 2434.3 | 3679.3 | 4087.8 | 4480.4 | 5341.0 | 4275.8 |
| 60° | 231.7 | 236.2 | 287.4 | 398.7 | 657.5 | 1239.0 | 2207.1 | 2569.7 | 2939.8 | 4088.5 | 3281.3 |
| 62.5° | 168.5 | 174.5 | 194.8 | 233.2 | 332.5 | 541.6 | 951.6 | 1106.6 | 1209.6 | 2025.1 | 1616.6 |
| 65° | 136.2 | 140.7 | 157.2 | 174.5 | 219.7 | 291.1 | 306.9 | 295.6 | 294.1 | 523.6 | 370.9 |
| 67.5° | 112.8 | 117.4 | 129.4 | 141.4 | 158.0 | 145.2 | 105.3 | 110.6 | 90.3 | 89.5 | 73.0 |
| 70° | 82.7 | 88.0 | 100.1 | 112.8 | 94.8 | 39.1 | 60.9 | 90.3 | 68.5 | 57.2 | 55.7 |
| 72.5° | 62.4 | 66.2 | 77.5 | 73.7 | 27.8 | 15.0 | 40.6 | 65.4 | 52.7 | 42.1 | 41.4 |
| 75° | 46.6 | 48.9 | 39.1 | 12.0 | 3.0 | 3.8 | 15.0 | 27.1 | 29.3 | 24.1 | 24.1 |
| 77.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 2.3 | 3.0 | 3.8 | 4.5 |
| 80° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 82.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 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 |



REPORT NUMBER: P634422

CATALOG NUMBER: GWS-SA3B-760-U-T2R-W-GRSBK

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 840.3 | 840.3 | 840.3 | 840.3 | 840.3 | 840.3 | 840.3 | 840.3 | 840.3 | 840.3 | 840.3 |
| 2.5° | 857.6 | 826.0 | 780.8 | 743.2 | 714.6 | 686.8 | 665.7 | 644.7 | 643.9 | 633.4 | 631.1 |
| 5° | 893.7 | 836.5 | 753.8 | 694.3 | 658.2 | 636.4 | 621.4 | 613.8 | 610.1 | 606.3 | 604.8 |
| 7.5° | 945.6 | 863.6 | 749.2 | 686.1 | 656.0 | 641.7 | 631.1 | 626.6 | 624.4 | 621.4 | 620.6 |
| 10° | 1009.5 | 902.7 | 765.8 | 701.9 | 675.5 | 662.0 | 650.7 | 643.9 | 640.2 | 634.9 | 633.4 |
| 12.5° | 1086.3 | 950.9 | 792.1 | 728.2 | 700.4 | 682.3 | 667.3 | 657.5 | 652.2 | 645.4 | 643.9 |
| 15° | 1169.0 | 1002.8 | 821.5 | 752.3 | 719.2 | 695.8 | 677.0 | 662.0 | 652.2 | 643.9 | 641.7 |
| 17.5° | 1254.8 | 1055.4 | 847.8 | 768.8 | 728.2 | 700.4 | 673.3 | 653.0 | 640.9 | 630.4 | 627.4 |
| 20° | 1351.1 | 1109.6 | 865.1 | 771.8 | 725.2 | 688.3 | 656.7 | 631.1 | 619.1 | 604.8 | 601.8 |
| 22.5° | 1451.9 | 1160.0 | 872.6 | 765.0 | 708.6 | 665.7 | 631.9 | 605.6 | 588.3 | 573.2 | 568.7 |
| 25° | 1549.6 | 1205.1 | 868.9 | 746.2 | 683.8 | 634.2 | 599.5 | 572.5 | 553.7 | 538.6 | 534.9 |
| 27.5° | 1653.5 | 1242.7 | 855.3 | 718.4 | 649.9 | 599.5 | 566.4 | 543.1 | 525.8 | 509.3 | 505.5 |
| 30° | 1770.1 | 1277.3 | 833.5 | 684.6 | 610.1 | 564.2 | 538.6 | 522.8 | 504.0 | 486.7 | 481.4 |
| 32.5° | 1910.7 | 1308.2 | 801.9 | 643.9 | 574.7 | 533.4 | 519.1 | 507.0 | 485.2 | 467.2 | 463.4 |
| 35° | 2071.7 | 1333.8 | 762.0 | 601.8 | 540.1 | 513.8 | 510.8 | 495.0 | 466.4 | 445.3 | 440.8 |
| 37.5° | 2258.3 | 1358.6 | 714.6 | 560.4 | 514.5 | 504.8 | 505.5 | 478.4 | 443.8 | 418.3 | 415.2 |
| 40° | 2459.1 | 1383.4 | 662.0 | 524.3 | 491.2 | 499.5 | 492.7 | 454.4 | 397.9 | 373.1 | 370.1 |
| 42.5° | 2668.3 | 1410.5 | 608.6 | 490.5 | 471.7 | 479.2 | 469.4 | 406.2 | 365.6 | 352.8 | 351.3 |
| 45° | 2857.1 | 1442.8 | 550.7 | 456.6 | 452.1 | 449.8 | 433.3 | 367.9 | 350.6 | 341.5 | 340.8 |
| 47.5° | 2993.2 | 1437.6 | 489.0 | 424.3 | 431.0 | 423.5 | 373.1 | 349.8 | 335.5 | 323.5 | 320.5 |
| 50° | 2968.4 | 1345.8 | 425.0 | 388.2 | 404.0 | 397.2 | 335.5 | 328.7 | 315.9 | 303.2 | 298.6 |
| 52.5° | 2905.2 | 1220.9 | 369.4 | 349.8 | 374.6 | 358.8 | 309.9 | 303.2 | 291.9 | 275.3 | 270.1 |
| 55° | 2939.1 | 1103.6 | 325.7 | 319.0 | 344.5 | 297.1 | 281.3 | 270.8 | 258.8 | 240.7 | 238.5 |
| 57.5° | 2830.0 | 900.5 | 261.8 | 266.3 | 304.7 | 253.5 | 246.7 | 230.2 | 209.9 | 197.8 | 196.3 |
| 60° | 1958.9 | 483.7 | 164.0 | 169.3 | 220.4 | 212.9 | 221.2 | 206.1 | 181.3 | 170.0 | 167.8 |
| 62.5° | 899.7 | 194.1 | 89.5 | 85.8 | 115.8 | 144.4 | 189.6 | 188.1 | 157.2 | 139.2 | 137.7 |
| 65° | 218.2 | 88.8 | 63.9 | 60.2 | 65.4 | 86.5 | 123.4 | 148.2 | 127.1 | 106.1 | 103.8 |
| 67.5° | 70.7 | 72.2 | 58.7 | 54.9 | 57.9 | 64.7 | 73.7 | 82.0 | 81.2 | 74.5 | 73.0 |
| 70° | 56.4 | 65.4 | 54.2 | 49.6 | 49.6 | 51.9 | 49.6 | 39.9 | 34.6 | 37.6 | 39.1 |
| 72.5° | 42.1 | 49.6 | 42.9 | 38.4 | 36.9 | 36.1 | 30.8 | 22.6 | 15.8 | 14.3 | 13.5 |
| 75° | 24.8 | 27.8 | 26.3 | 22.6 | 21.1 | 18.8 | 15.0 | 9.8 | 5.3 | 3.8 | 2.3 |
| 77.5° | 4.5 | 5.3 | 6.0 | 4.5 | 3.8 | 3.0 | 2.3 | 0.8 | 0.0 | 0.0 | 0.0 |
| 80° | 0.0 | 0.8 | 0.8 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 82.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 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

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 |

REPORT NUMBER: SP1-1908-441-9-R4

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 | | | |

REPORT NUMBER: SP1-1908-441-9-R4

TM-30-18

Summary

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



Color Vector Graphics



REPORT NUMBER: SP1-1908-441-9-R4

TM-30-18

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 | |



REPORT NUMBER: SP1-1908-441-9-R4

TM-30-18

Color Rendition by Hue-Angle Bin



REPORT NUMBER: SP1-1908-441-9-R4

TM-30-18

Measure Comparisons



(END OF REPORT)