

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: P637830

Luminaire Tested: GWS-SA4D-750-U-T2-W-HSS

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P637830
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-22)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA4D-750-U-T2-W-HSS
Description: GALLEON WALL SLIM LUMINAIRE. (4) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II OPTICS WITH HOUSE SIDE SHIELD
Light Source: (64) 5000K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 18764 lumens
Efficiency: N/A
Efficacy: 115.8 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type II - Short
BUG Rating: B1 - U0 - G3

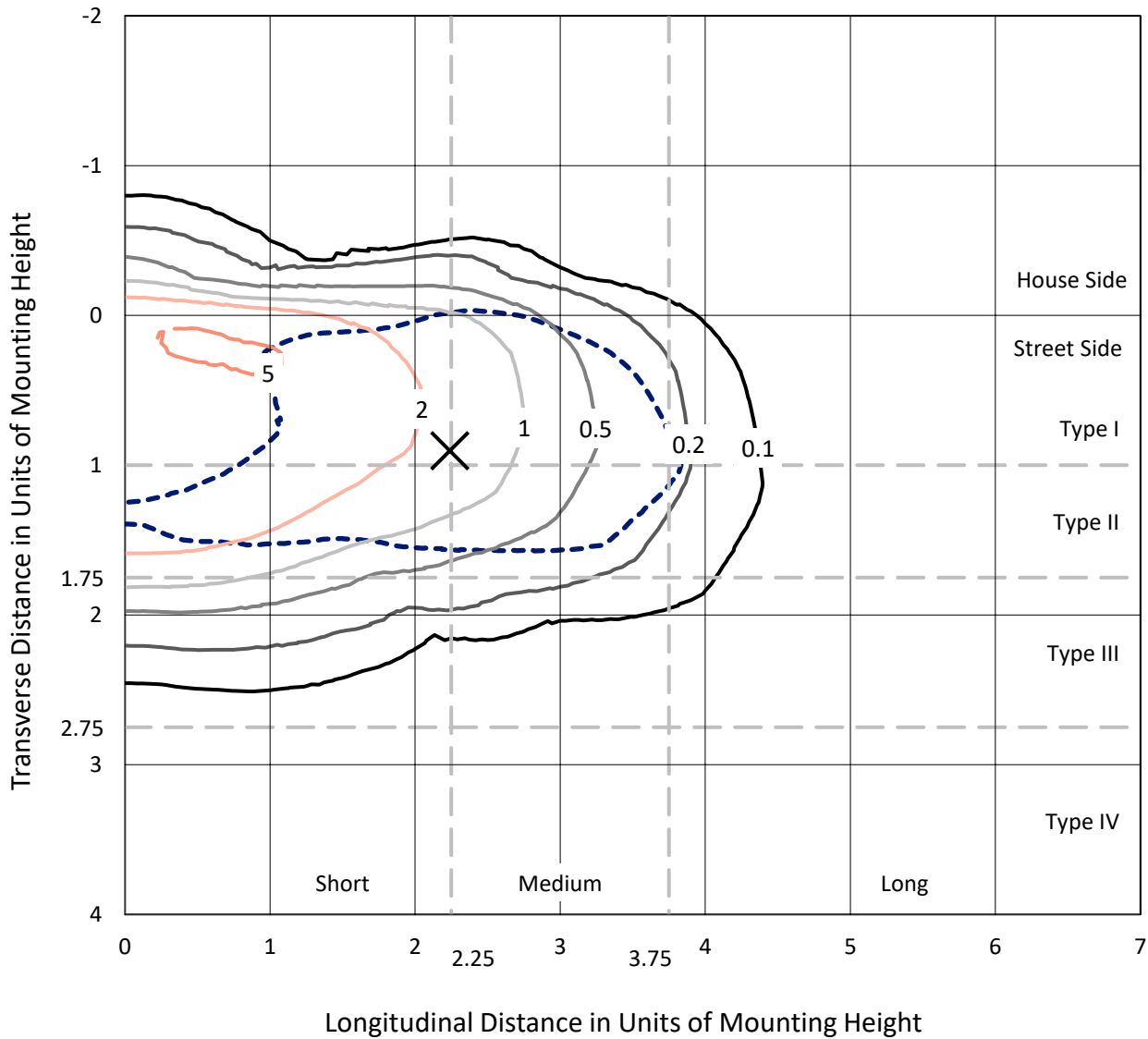
Input Watts (W): 162.1
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P637830
 CATALOG NUMBER: GWS-SA4D-750-U-T2-W-HSS

Iso-Footcandle Lines of Horizontal Illumination

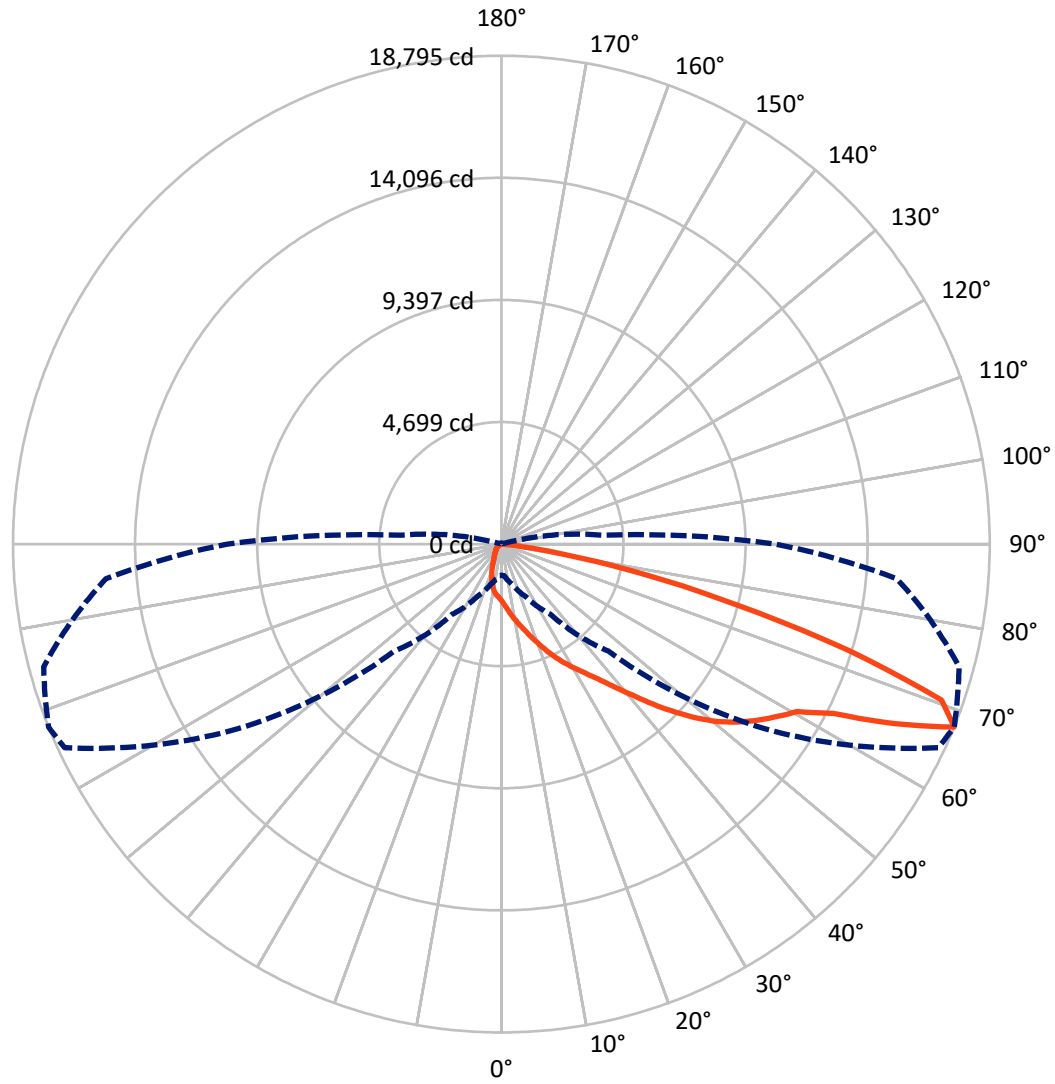
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 5.6 fc
 Type II - Short - N/A

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CATALOG NUMBER: GWS-SA4D-750-U-T2-W-HSS

Luminous Intensity Polar Plot



— Vertical Plane Through 68-Deg Lateral - - - Horizontal Cone Through 67.5-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 1355.0 | 0.0 | 1355.0 |
| | % Fixture | 7.2 | 0.0 | 7.2 |
| Street Side | Lumens | 17409.0 | 0.0 | 17409.0 |
| | % Fixture | 92.8 | 0.0 | 92.8 |
| Total | Lumens | 18764.0 | 0.0 | 18764.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 213.0 | 1.1 |
| 10°-20° | 611.6 | 3.3 |
| 20°-30° | 1051.0 | 5.6 |
| 30°-40° | 1827.3 | 9.7 |
| 40°-50° | 3188.5 | 17.0 |
| 50°-60° | 4809.1 | 25.6 |
| 60°-70° | 4822.3 | 25.7 |
| 70°-80° | 2127.6 | 11.3 |
| 80°-90° | 113.7 | 0.6 |
| 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° | 18764.0 | 100.0 |
| 0°-180° | 18764.0 | 100.0 |

Coefficient of Utilization



REPORT NUMBER: P637830

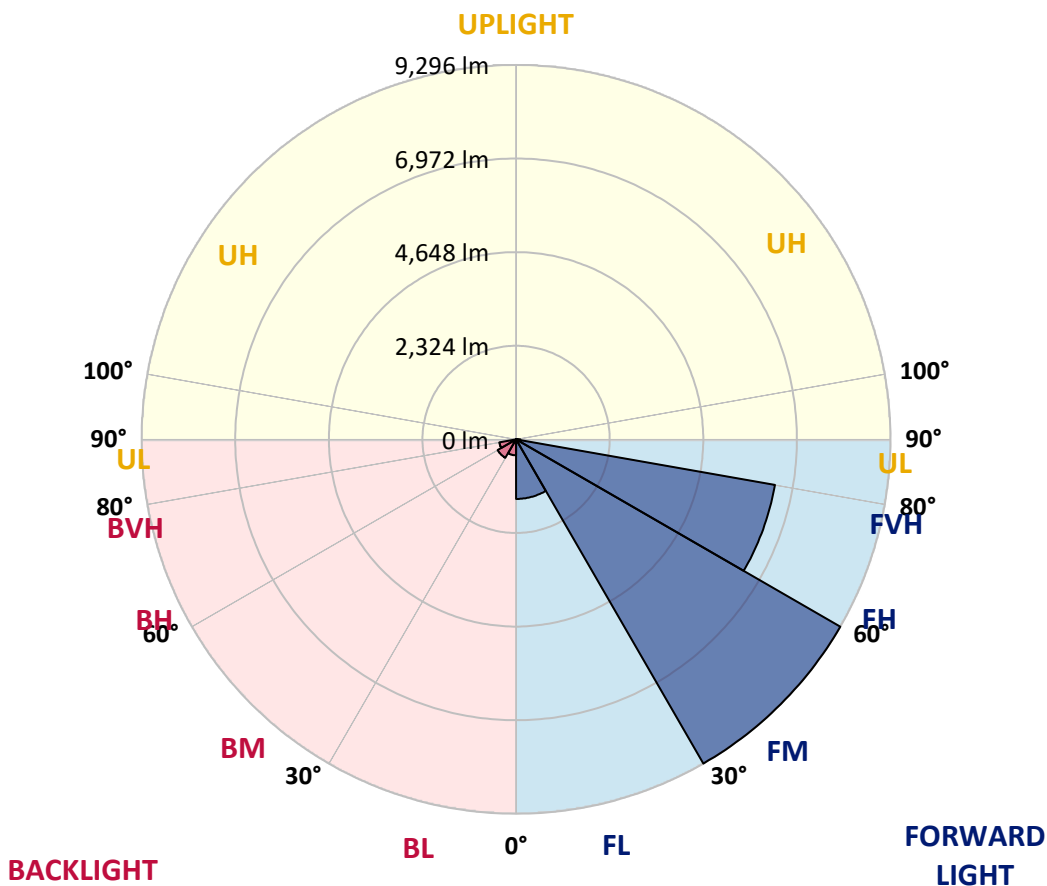
CATALOG NUMBER: GWS-SA4D-750-U-T2-W-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1479.2 | 7.9 | | | |
| FM (30°-60°) | 9295.6 | 49.5 | | | |
| FH (60°-80°) | 6527.0 | 34.8 | | | G3/7500 |
| FVH (80°-90°) | 107.2 | 0.6 | | | G2/225 |
| BL (0°-30°) | 396.4 | 2.1 | B1/500 | | |
| BM (30°-60°) | 529.3 | 2.8 | B1/1000 | | |
| BH (60°-80°) | 422.9 | 2.3 | B1/500 | | G1/500 |
| BVH (80°-90°) | 6.4 | 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-G3

Type II Short





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CATALOG NUMBER: GWS-SA4D-750-U-T2-W-HSS

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 68° | 75° | 85° |
|-------|--------|--------|--------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0° | 2183.7 | 2183.7 | 2183.7 | 2183.7 | 2183.7 | 2183.7 | 2183.7 | 2183.7 | 2183.7 | 2183.7 | 2183.7 |
| 2.5° | 2542.8 | 2559.0 | 2542.8 | 2546.4 | 2499.7 | 2478.2 | 2431.5 | 2366.8 | 2350.7 | 2309.4 | 2246.5 |
| 5° | 2853.5 | 2867.8 | 2851.7 | 2848.1 | 2794.2 | 2754.7 | 2677.5 | 2566.2 | 2533.8 | 2453.0 | 2329.1 |
| 7.5° | 3022.3 | 3031.3 | 3036.6 | 3045.6 | 3025.9 | 2993.5 | 2923.5 | 2785.2 | 2751.1 | 2620.0 | 2445.8 |
| 10° | 3040.2 | 3047.4 | 3074.4 | 3128.2 | 3167.7 | 3187.5 | 3148.0 | 3020.5 | 2966.6 | 2839.1 | 2589.5 |
| 12.5° | 2990.0 | 3000.7 | 3043.8 | 3133.6 | 3243.2 | 3343.7 | 3368.9 | 3257.5 | 3209.0 | 3045.6 | 2758.3 |
| 15° | 2923.5 | 2932.5 | 2991.7 | 3113.9 | 3279.1 | 3464.0 | 3568.2 | 3519.7 | 3465.8 | 3295.2 | 2945.1 |
| 17.5° | 2821.1 | 2833.7 | 2916.3 | 3081.5 | 3295.2 | 3559.2 | 3783.7 | 3799.8 | 3762.1 | 3577.2 | 3151.6 |
| 20° | 2763.7 | 2772.7 | 2846.3 | 3016.9 | 3284.5 | 3629.2 | 3984.8 | 4137.4 | 4096.1 | 3902.2 | 3388.6 |
| 22.5° | 2812.2 | 2819.4 | 2867.8 | 3000.7 | 3248.5 | 3668.8 | 4171.6 | 4475.1 | 4451.7 | 4250.6 | 3638.2 |
| 25° | 3067.2 | 3090.5 | 3061.8 | 3085.1 | 3264.7 | 3690.3 | 4322.4 | 4812.7 | 4818.0 | 4615.1 | 3896.8 |
| 27.5° | 3584.4 | 3553.8 | 3485.6 | 3368.9 | 3390.4 | 3747.8 | 4451.7 | 5130.5 | 5177.2 | 4970.7 | 4126.7 |
| 30° | 4110.5 | 4092.6 | 4051.3 | 3869.9 | 3719.0 | 3875.3 | 4561.2 | 5455.5 | 5529.2 | 5320.9 | 4331.4 |
| 32.5° | 4701.3 | 4719.3 | 4645.6 | 4428.4 | 4171.6 | 4133.9 | 4674.4 | 5764.4 | 5902.7 | 5717.7 | 4572.0 |
| 35° | 5407.1 | 5412.4 | 5267.0 | 5026.4 | 4735.4 | 4561.2 | 4877.3 | 6105.6 | 6360.6 | 6224.1 | 4893.5 |
| 37.5° | 6094.8 | 6127.2 | 6048.1 | 5669.2 | 5410.6 | 5092.8 | 5213.1 | 6543.8 | 6902.9 | 6849.1 | 5297.5 |
| 40° | 6703.6 | 6753.9 | 6728.7 | 6362.4 | 6023.0 | 5755.4 | 5733.9 | 7057.4 | 7558.4 | 7619.4 | 5830.9 |
| 42.5° | 7188.5 | 7220.8 | 7240.5 | 6980.1 | 6680.3 | 6529.4 | 6376.8 | 7653.6 | 8332.4 | 8582.0 | 6484.5 |
| 45° | 7700.2 | 7711.0 | 7752.3 | 7576.3 | 7314.2 | 7326.7 | 7136.4 | 8377.3 | 9147.6 | 9648.7 | 7235.1 |
| 47.5° | 8352.1 | 8388.0 | 8368.3 | 8183.3 | 7946.3 | 8088.1 | 7921.1 | 9122.5 | 9952.1 | 10787.2 | 8003.7 |
| 50° | 9145.8 | 9183.6 | 9165.6 | 8950.1 | 8686.1 | 8745.4 | 8641.2 | 9846.2 | 10727.9 | 11861.0 | 8643.0 |
| 52.5° | 9555.3 | 9585.8 | 9808.5 | 9905.4 | 9767.2 | 9390.1 | 9255.4 | 10641.7 | 11383.4 | 12744.6 | 9230.2 |
| 55° | 9357.7 | 9379.3 | 9864.1 | 10273.6 | 10780.0 | 10402.9 | 9873.1 | 11255.9 | 11961.6 | 13434.1 | 9666.6 |
| 57.5° | 8538.9 | 8655.6 | 9314.6 | 10007.8 | 11072.7 | 11403.1 | 10875.2 | 11923.9 | 12518.3 | 13913.6 | 10095.8 |
| 60° | 6859.8 | 6854.4 | 7799.0 | 9043.5 | 10501.6 | 11677.9 | 12290.2 | 12827.2 | 13076.8 | 14281.7 | 10670.4 |
| 62.5° | 3790.9 | 3825.0 | 5082.0 | 6721.6 | 8914.2 | 10966.7 | 13351.5 | 14387.7 | 14350.0 | 14924.6 | 11570.1 |
| 65° | 1887.4 | 1955.6 | 2638.0 | 3850.1 | 5931.4 | 9063.2 | 13534.7 | 16768.9 | 16661.1 | 16438.4 | 13428.7 |
| 67.5° | 1197.8 | 1224.7 | 1601.8 | 2237.5 | 3297.0 | 5825.5 | 12394.4 | 18544.9 | 18794.5 | 18234.2 | 15273.0 |
| 70° | 775.8 | 820.7 | 1113.4 | 1530.0 | 1989.7 | 3002.5 | 9079.4 | 17393.8 | 17966.6 | 18036.7 | 14123.7 |
| 72.5° | 422.0 | 454.3 | 711.1 | 1091.8 | 1436.6 | 1501.3 | 5100.0 | 13053.4 | 13974.7 | 15299.9 | 11049.4 |
| 75° | 240.6 | 264.0 | 389.7 | 741.7 | 1054.1 | 914.0 | 2260.9 | 8738.2 | 9325.4 | 10934.4 | 7917.5 |
| 77.5° | 145.5 | 165.2 | 219.1 | 360.9 | 660.8 | 610.6 | 854.8 | 5319.1 | 5692.6 | 6524.0 | 4155.4 |
| 80° | 66.4 | 79.0 | 138.3 | 199.3 | 360.9 | 289.1 | 326.8 | 2480.0 | 2560.8 | 2677.5 | 1375.6 |
| 82.5° | 30.5 | 35.9 | 62.9 | 118.5 | 204.7 | 167.0 | 125.7 | 572.8 | 806.3 | 763.2 | 350.2 |
| 85° | 3.6 | 3.6 | 23.3 | 48.5 | 57.5 | 43.1 | 52.1 | 129.3 | 163.4 | 229.9 | 100.6 |
| 87.5° | 0.0 | 0.0 | 1.8 | 1.8 | 3.6 | 5.4 | 10.8 | 16.2 | 23.3 | 37.7 | 25.1 |
| 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: P637830

CATALOG NUMBER: GWS-SA4D-750-U-T2-W-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2183.7 | 2183.7 | 2183.7 | 2183.7 | 2183.7 | 2183.7 | 2183.7 | 2183.7 | 2183.7 | 2183.7 | 2183.7 |
| 2.5° | 2217.8 | 2167.5 | 2122.6 | 2056.2 | 2011.3 | 1961.0 | 1926.9 | 1885.6 | 1869.4 | 1856.8 | 1838.9 |
| 5° | 2268.1 | 2187.2 | 2077.7 | 1955.6 | 1855.0 | 1759.9 | 1671.9 | 1614.4 | 1564.1 | 1556.9 | 1531.8 |
| 7.5° | 2350.7 | 2230.3 | 2045.4 | 1846.0 | 1675.5 | 1517.4 | 1393.5 | 1293.0 | 1242.7 | 1226.5 | 1197.8 |
| 10° | 2460.2 | 2295.0 | 1996.9 | 1691.6 | 1445.6 | 1257.0 | 1117.0 | 1003.8 | 924.8 | 896.1 | 874.5 |
| 12.5° | 2582.3 | 2354.3 | 1919.7 | 1501.3 | 1221.1 | 1005.6 | 827.8 | 707.5 | 657.3 | 639.3 | 623.1 |
| 15° | 2722.4 | 2409.9 | 1797.6 | 1310.9 | 1002.0 | 739.9 | 614.2 | 562.1 | 540.5 | 535.1 | 529.8 |
| 17.5° | 2857.1 | 2445.8 | 1652.1 | 1113.4 | 770.4 | 574.6 | 515.4 | 495.6 | 490.2 | 484.9 | 481.3 |
| 20° | 3009.7 | 2471.0 | 1481.5 | 926.6 | 598.0 | 486.7 | 457.9 | 443.6 | 432.8 | 422.0 | 420.2 |
| 22.5° | 3165.9 | 2471.0 | 1296.5 | 743.4 | 501.0 | 436.4 | 404.0 | 377.1 | 357.4 | 346.6 | 343.0 |
| 25° | 3315.0 | 2436.9 | 1113.4 | 594.4 | 441.8 | 387.9 | 346.6 | 316.1 | 289.1 | 276.5 | 273.0 |
| 27.5° | 3420.9 | 2348.9 | 953.6 | 502.8 | 400.5 | 344.8 | 294.5 | 260.4 | 238.8 | 226.3 | 224.5 |
| 30° | 3487.4 | 2217.8 | 806.3 | 448.9 | 364.5 | 299.9 | 249.6 | 220.9 | 204.7 | 195.7 | 192.1 |
| 32.5° | 3537.7 | 2056.2 | 675.2 | 411.2 | 330.4 | 260.4 | 217.3 | 193.9 | 179.6 | 172.4 | 170.6 |
| 35° | 3638.2 | 1903.5 | 578.2 | 377.1 | 294.5 | 228.1 | 190.4 | 172.4 | 161.6 | 152.6 | 150.8 |
| 37.5° | 3778.3 | 1776.0 | 501.0 | 346.6 | 260.4 | 202.9 | 172.4 | 156.2 | 147.3 | 138.3 | 136.5 |
| 40° | 3984.8 | 1695.2 | 443.6 | 316.1 | 229.9 | 183.2 | 158.0 | 143.7 | 131.1 | 122.1 | 120.3 |
| 42.5° | 4302.7 | 1657.5 | 405.8 | 285.5 | 202.9 | 165.2 | 145.5 | 127.5 | 114.9 | 106.0 | 104.2 |
| 45° | 4681.6 | 1677.2 | 373.5 | 255.0 | 185.0 | 152.6 | 129.3 | 111.3 | 98.8 | 89.8 | 88.0 |
| 47.5° | 5087.4 | 1747.3 | 346.6 | 226.3 | 167.0 | 140.1 | 114.9 | 95.2 | 84.4 | 75.4 | 73.6 |
| 50° | 5511.2 | 1862.2 | 323.2 | 199.3 | 152.6 | 125.7 | 98.8 | 82.6 | 71.8 | 64.6 | 62.9 |
| 52.5° | 5879.3 | 2018.4 | 299.9 | 179.6 | 140.1 | 111.3 | 86.2 | 71.8 | 61.1 | 53.9 | 52.1 |
| 55° | 6231.3 | 2165.7 | 281.9 | 161.6 | 125.7 | 97.0 | 75.4 | 61.1 | 52.1 | 44.9 | 43.1 |
| 57.5° | 6613.8 | 2321.9 | 260.4 | 145.5 | 113.1 | 86.2 | 66.4 | 52.1 | 44.9 | 37.7 | 35.9 |
| 60° | 7170.5 | 2553.6 | 228.1 | 132.9 | 98.8 | 75.4 | 57.5 | 46.7 | 39.5 | 30.5 | 28.7 |
| 62.5° | 7973.2 | 2975.6 | 192.1 | 114.9 | 84.4 | 64.6 | 48.5 | 39.5 | 32.3 | 25.1 | 21.5 |
| 65° | 9474.5 | 3693.9 | 158.0 | 95.2 | 68.2 | 53.9 | 41.3 | 32.3 | 25.1 | 18.0 | 16.2 |
| 67.5° | 10555.5 | 3880.7 | 127.5 | 77.2 | 55.7 | 41.3 | 34.1 | 25.1 | 18.0 | 12.6 | 10.8 |
| 70° | 9228.4 | 2787.0 | 98.8 | 62.9 | 46.7 | 32.3 | 26.9 | 19.8 | 12.6 | 9.0 | 7.2 |
| 72.5° | 6953.2 | 1820.9 | 73.6 | 48.5 | 35.9 | 26.9 | 19.8 | 16.2 | 10.8 | 7.2 | 5.4 |
| 75° | 4900.6 | 1052.3 | 53.9 | 35.9 | 25.1 | 19.8 | 16.2 | 12.6 | 9.0 | 5.4 | 5.4 |
| 77.5° | 2512.3 | 434.6 | 37.7 | 25.1 | 18.0 | 12.6 | 10.8 | 7.2 | 7.2 | 5.4 | 3.6 |
| 80° | 763.2 | 143.7 | 21.5 | 16.2 | 12.6 | 9.0 | 5.4 | 5.4 | 5.4 | 3.6 | 1.8 |
| 82.5° | 174.2 | 46.7 | 12.6 | 12.6 | 9.0 | 7.2 | 5.4 | 1.8 | 1.8 | 0.0 | 0.0 |
| 85° | 44.9 | 14.4 | 10.8 | 9.0 | 9.0 | 7.2 | 3.6 | 1.8 | 0.0 | 0.0 | 0.0 |
| 87.5° | 16.2 | 9.0 | 9.0 | 9.0 | 7.2 | 5.4 | 3.6 | 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: SP1-1908-441-4-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

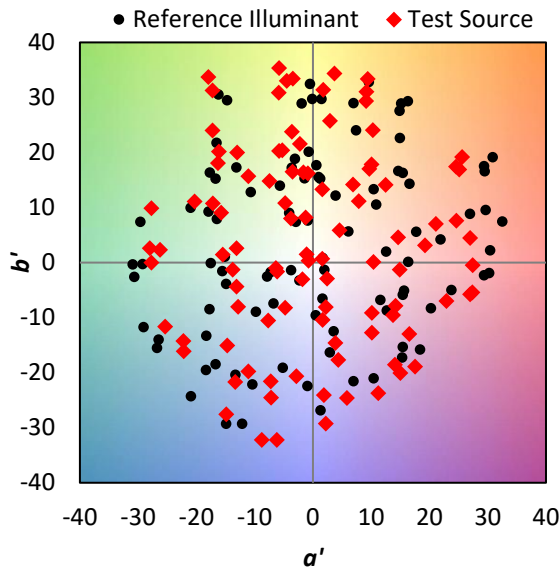
TM-30-18

Summary

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



Color Vector Graphics



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

TM-30-18

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 | |



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

TM-30-18

Color Rendition by Hue-Angle Bin



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

TM-30-18

Measure Comparisons



(END OF REPORT)