

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: P640834

Luminaire Tested: GWS-SA5E-760-U-SL2-W-GRSBK

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P640834
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-28)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA5E-760-U-SL2-W-GRSBK
Description: GALLEON WALL SLIM LUMINAIRE. (5) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II SPILL LIGHT ELIMINATOR OPTICS W/ FACTORY INSTALLED GLARE SHIELD, BK
Light Source: (80) 5700K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 22239.6 lumens
Efficiency: N/A
Efficacy: 82.5 lumens/watt
Luminous Opening: Rectangular (W 1.5' x L: 1' x H: 0')
IES Classification: Type II - Short
BUG Rating: B3 - U0 - G2

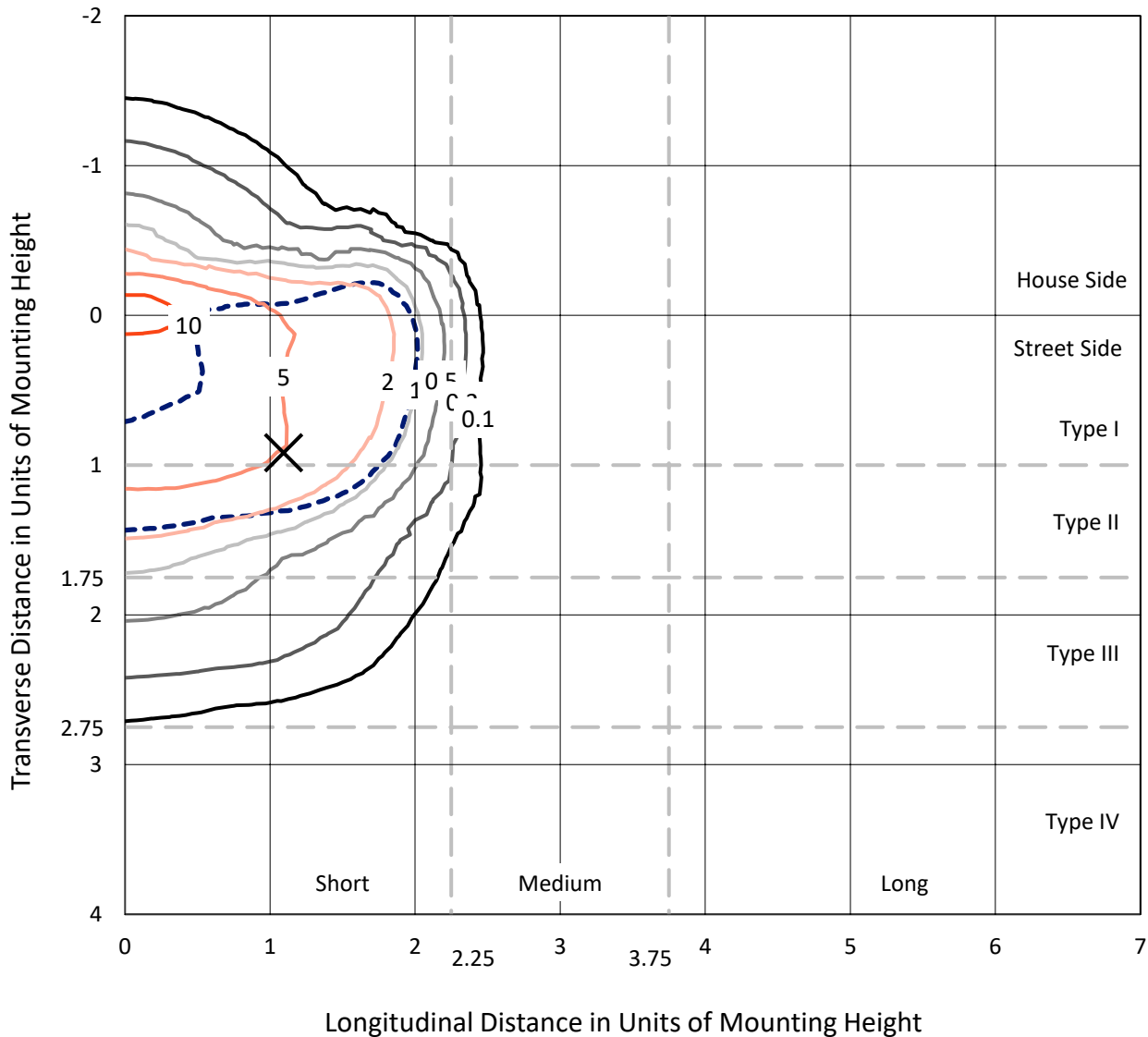
Input Watts (W): 269.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P640834
 CATALOG NUMBER: GWS-SA5E-760-U-SL2-W-GRSBK

Iso-Footcandle Lines of Horizontal Illumination

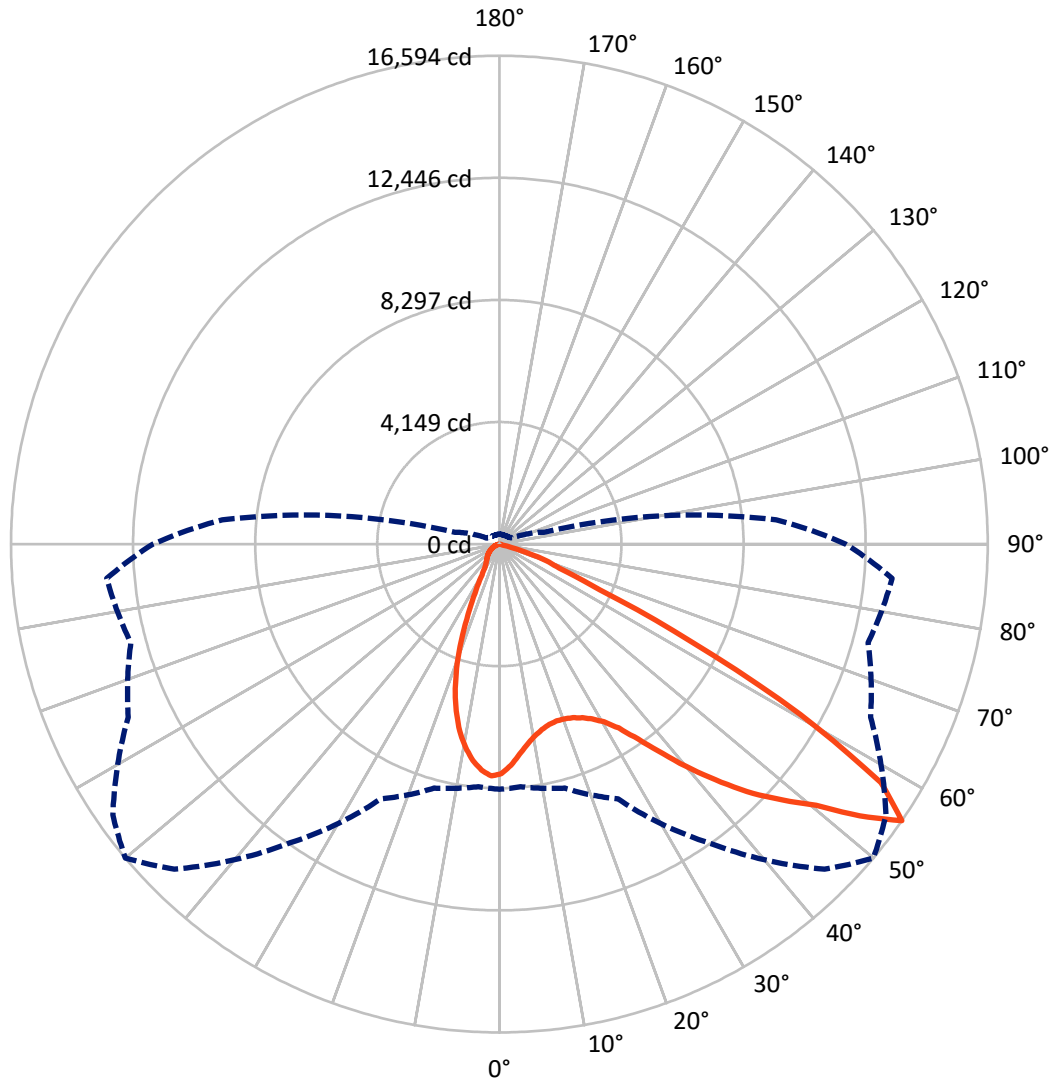
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 12.5 fc
 Type II - Short - N/A

REPORT NUMBER: P640834
CATALOG NUMBER: GWS-SA5E-760-U-SL2-W-GRSBK

Luminous Intensity Polar Plot



— Vertical Plane Through 50-Deg Lateral - - - Horizontal Cone Through 55-Deg Vertical

REPORT NUMBER: P640834
 CATALOG NUMBER: GWS-SA5E-760-U-SL2-W-GRSBK

FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 4382.2 | 0.0 | 4382.2 |
| | % Fixture | 19.7 | 0.0 | 19.7 |
| Street Side | Lumens | 17857.4 | 0.0 | 17857.4 |
| | % Fixture | 80.3 | 0.0 | 80.3 |
| Total | Lumens | 22239.6 | 0.0 | 22239.6 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 685.2 | 3.1 |
| 10°-20° | 1686.3 | 7.6 |
| 20°-30° | 2378.6 | 10.7 |
| 30°-40° | 3519.8 | 15.8 |
| 40°-50° | 5078.0 | 22.8 |
| 50°-60° | 5989.9 | 26.9 |
| 60°-70° | 2672.0 | 12.0 |
| 70°-80° | 229.7 | 1.0 |
| 80°-90° | 0.1 | 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° | 22239.6 | 100.0 |
| 0°-180° | 22239.6 | 100.0 |

Coefficient of Utilization



REPORT NUMBER: P640834

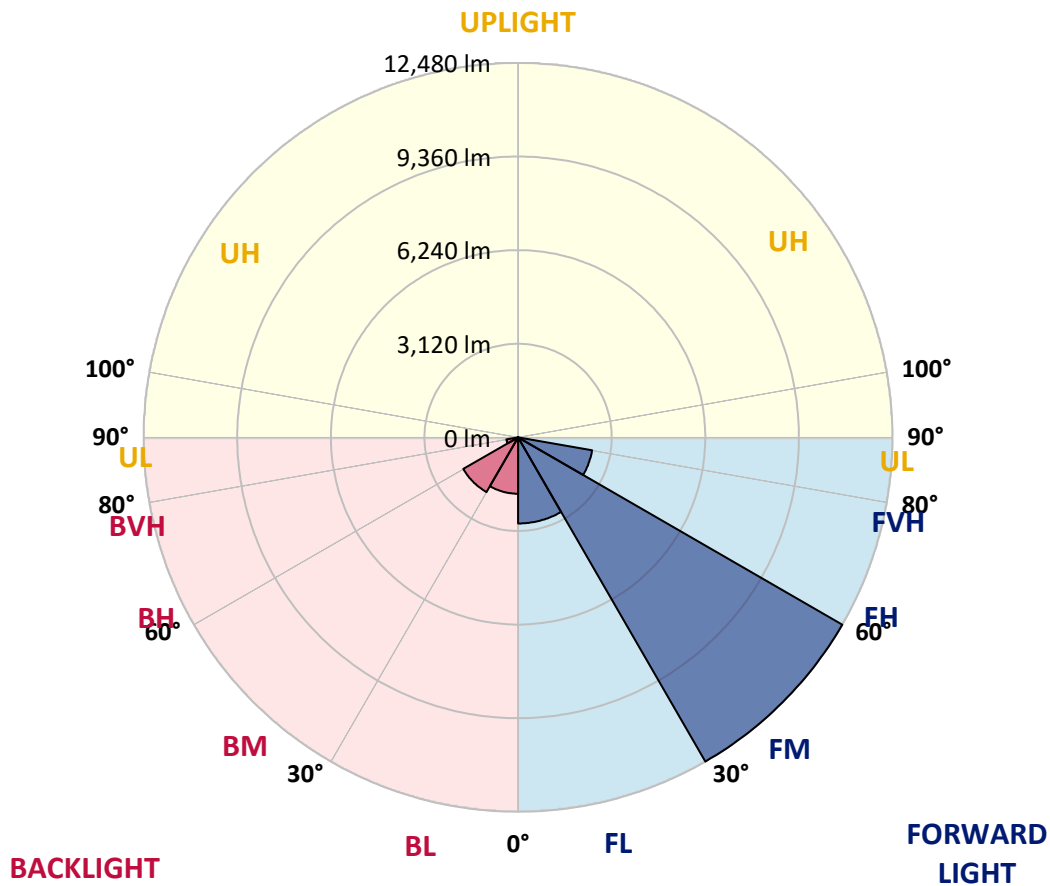
CATALOG NUMBER: GWS-SA5E-760-U-SL2-W-GRSBK

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|---------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 2871.2 | 12.9 | | | |
| FM (30°-60°) | 12480.1 | 56.1 | | | |
| FH (60°-80°) | 2506.0 | 11.3 | | | G2/5000 |
| FVH (80°-90°) | 0.0 | 0.0 | | | G0/10 |
| BL (0°-30°) | 1878.9 | 8.4 | B3/2500 | | |
| BM (30°-60°) | 2107.5 | 9.5 | B2/2500 | | |
| BH (60°-80°) | 395.7 | 1.8 | B1/500 | | G1/500 |
| BVH (80°-90°) | 0.1 | 0.0 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B3-U0-G2

Type II Short





REPORT NUMBER: P640834
 CATALOG NUMBER: GWS-SA5E-760-U-SL2-W-GRSBK

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 50° | 55° | 65° | 75° | 85° |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0° | 7802.9 | 7802.9 | 7802.9 | 7802.9 | 7802.9 | 7802.9 | 7802.9 | 7802.9 | 7802.9 | 7802.9 | 7802.9 |
| 2.5° | 7249.0 | 7254.5 | 7257.2 | 7330.5 | 7357.6 | 7466.2 | 7523.2 | 7553.1 | 7631.8 | 7724.2 | 7800.2 |
| 5° | 6763.0 | 6754.9 | 6768.5 | 6860.8 | 6920.5 | 7080.7 | 7167.6 | 7227.3 | 7401.1 | 7618.3 | 7800.2 |
| 7.5° | 6339.5 | 6355.8 | 6372.1 | 6472.5 | 6562.1 | 6735.9 | 6860.8 | 6950.4 | 7192.0 | 7515.1 | 7821.9 |
| 10° | 6040.9 | 6040.9 | 6065.3 | 6179.3 | 6285.2 | 6499.7 | 6624.6 | 6738.6 | 7026.4 | 7422.8 | 7846.3 |
| 12.5° | 5820.9 | 5823.7 | 5853.5 | 5983.8 | 6106.0 | 6328.6 | 6459.0 | 6570.3 | 6887.9 | 7330.5 | 7851.8 |
| 15° | 5717.8 | 5709.6 | 5734.1 | 5872.5 | 6008.3 | 6217.3 | 6353.1 | 6461.7 | 6790.2 | 7278.9 | 7878.9 |
| 17.5° | 5690.6 | 5685.2 | 5704.2 | 5839.9 | 5978.4 | 6182.0 | 6315.1 | 6423.7 | 6776.6 | 7295.2 | 7960.4 |
| 20° | 5769.4 | 5758.5 | 5750.4 | 5867.1 | 5997.4 | 6198.3 | 6336.8 | 6459.0 | 6841.8 | 7384.8 | 8085.2 |
| 22.5° | 5956.7 | 5956.7 | 5937.7 | 5994.7 | 6081.6 | 6263.5 | 6407.4 | 6567.6 | 7012.8 | 7564.0 | 8269.9 |
| 25° | 6301.5 | 6274.3 | 6239.1 | 6263.5 | 6252.6 | 6366.7 | 6537.7 | 6760.3 | 7335.9 | 7859.9 | 8495.2 |
| 27.5° | 6695.2 | 6719.6 | 6659.9 | 6662.6 | 6567.6 | 6526.8 | 6725.0 | 7061.7 | 7816.5 | 8278.0 | 8829.2 |
| 30° | 7230.0 | 7211.0 | 7213.7 | 7205.6 | 6985.7 | 6792.9 | 7007.4 | 7455.4 | 8421.9 | 8916.0 | 9263.6 |
| 32.5° | 7648.1 | 7675.3 | 7764.9 | 7816.5 | 7528.7 | 7219.2 | 7447.2 | 7990.2 | 9111.5 | 9643.7 | 9795.7 |
| 35° | 8090.7 | 8139.5 | 8321.5 | 8489.8 | 8248.1 | 7892.5 | 8136.8 | 8698.8 | 9760.4 | 10363.1 | 10406.6 |
| 37.5° | 8557.7 | 8655.4 | 8872.6 | 9168.5 | 9130.5 | 8815.6 | 9038.2 | 9532.3 | 10270.8 | 10797.5 | 10911.6 |
| 40° | 9092.5 | 9187.5 | 9543.2 | 9969.5 | 10059.0 | 9988.5 | 10061.8 | 10349.6 | 10607.5 | 10816.5 | 11128.8 |
| 42.5° | 9678.9 | 9809.3 | 10260.0 | 10830.1 | 11166.8 | 11229.2 | 11058.2 | 11028.3 | 10754.1 | 10599.3 | 11082.6 |
| 45° | 10371.3 | 10523.3 | 11033.7 | 11772.2 | 12307.1 | 12391.2 | 12095.3 | 11712.5 | 10846.4 | 10439.1 | 10944.1 |
| 47.5° | 11147.8 | 11291.7 | 11799.4 | 12687.2 | 13482.7 | 13515.2 | 12999.4 | 12383.1 | 11120.6 | 10623.8 | 11050.0 |
| 50° | 11408.4 | 11498.0 | 11937.8 | 12980.4 | 14446.5 | 14696.3 | 13949.6 | 13137.8 | 11671.8 | 11166.8 | 11565.9 |
| 52.5° | 10512.5 | 10547.7 | 10930.6 | 11984.0 | 14251.0 | 15855.6 | 15337.0 | 14264.6 | 12651.9 | 11994.8 | 12361.4 |
| 55° | 8329.6 | 8272.6 | 8582.1 | 9548.6 | 12385.8 | 15619.4 | 16594.0 | 16034.7 | 13914.3 | 12966.8 | 13395.8 |
| 57.5° | 5826.4 | 5758.5 | 5687.9 | 6342.2 | 9241.8 | 13241.0 | 15290.8 | 16281.8 | 15117.1 | 13930.6 | 14511.6 |
| 60° | 4789.2 | 4724.1 | 4382.0 | 4080.6 | 5587.5 | 9507.9 | 11745.1 | 13610.3 | 15019.3 | 13881.8 | 14476.3 |
| 62.5° | 4137.6 | 4099.6 | 3961.2 | 3551.2 | 3287.9 | 5427.3 | 7354.9 | 9141.4 | 11525.1 | 10900.7 | 10933.3 |
| 65° | 3249.8 | 3239.0 | 3334.0 | 3377.5 | 2907.8 | 3002.8 | 3752.1 | 4751.2 | 6230.9 | 5875.2 | 5571.2 |
| 67.5° | 2220.9 | 2196.4 | 2375.6 | 2921.3 | 2796.4 | 2370.2 | 2196.4 | 2215.4 | 2696.0 | 1648.0 | 1308.6 |
| 70° | 1411.8 | 1354.8 | 1357.5 | 1810.9 | 2275.2 | 1870.6 | 1694.2 | 1490.5 | 1341.2 | 244.3 | 276.9 |
| 72.5° | 904.1 | 868.8 | 746.6 | 817.2 | 1053.4 | 912.2 | 920.4 | 792.8 | 529.4 | 130.3 | 152.0 |
| 75° | 380.1 | 350.2 | 268.8 | 214.5 | 211.8 | 133.0 | 116.7 | 108.6 | 73.3 | 73.3 | 78.7 |
| 77.5° | 2.7 | 0.0 | 0.0 | 2.7 | 5.4 | 2.7 | 2.7 | 5.4 | 10.9 | 16.3 | 19.0 |
| 80° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.7 |
| 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: P640834

CATALOG NUMBER: GWS-SA5E-760-U-SL2-W-GRSBK

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 7802.9 | 7802.9 | 7802.9 | 7802.9 | 7802.9 | 7802.9 | 7802.9 | 7802.9 | 7802.9 | 7802.9 | 7802.9 |
| 2.5° | 7846.3 | 7781.2 | 7854.5 | 7881.6 | 7878.9 | 7881.6 | 7802.9 | 7748.6 | 7745.9 | 7678.0 | 7645.4 |
| 5° | 7876.2 | 7824.6 | 7878.9 | 7843.6 | 7759.4 | 7653.6 | 7512.4 | 7390.2 | 7335.9 | 7257.2 | 7219.2 |
| 7.5° | 7933.2 | 7878.9 | 7870.8 | 7729.6 | 7520.5 | 7297.9 | 7048.1 | 6825.5 | 6706.0 | 6562.1 | 6570.3 |
| 10° | 7973.9 | 7911.5 | 7805.6 | 7517.8 | 7170.3 | 6814.6 | 6442.7 | 6111.4 | 5902.4 | 5709.6 | 5677.0 |
| 12.5° | 7990.2 | 7897.9 | 7650.8 | 7216.4 | 6727.8 | 6263.5 | 5717.8 | 5245.4 | 4919.6 | 4667.1 | 4631.8 |
| 15° | 8020.1 | 7870.8 | 7452.7 | 6852.6 | 6182.0 | 5525.0 | 4830.0 | 4183.8 | 3752.1 | 3461.6 | 3486.1 |
| 17.5° | 8066.2 | 7840.9 | 7230.0 | 6445.4 | 5595.6 | 4667.1 | 3727.7 | 2986.5 | 2590.1 | 2421.8 | 2424.5 |
| 20° | 8131.4 | 7805.6 | 6985.7 | 5997.4 | 4892.4 | 3697.8 | 2606.4 | 2047.1 | 1935.8 | 1930.4 | 1922.2 |
| 22.5° | 8218.3 | 7770.3 | 6725.0 | 5506.0 | 4058.9 | 2590.1 | 1734.9 | 1561.1 | 1607.3 | 1696.9 | 1713.2 |
| 25° | 8321.5 | 7726.9 | 6434.5 | 4952.1 | 3149.4 | 1699.6 | 1300.5 | 1273.3 | 1384.6 | 1504.1 | 1531.3 |
| 27.5° | 8481.6 | 7705.1 | 6103.3 | 4322.3 | 2210.0 | 1219.0 | 1064.3 | 1080.6 | 1181.0 | 1281.5 | 1305.9 |
| 30° | 8753.1 | 7745.9 | 5742.2 | 3616.4 | 1419.9 | 972.0 | 923.1 | 947.5 | 1001.8 | 1053.4 | 1075.1 |
| 32.5° | 9122.4 | 7865.3 | 5392.0 | 2845.3 | 1012.7 | 844.4 | 833.5 | 847.1 | 868.8 | 898.7 | 906.8 |
| 35° | 9554.1 | 8071.7 | 5030.9 | 2036.2 | 836.2 | 771.1 | 760.2 | 760.2 | 771.1 | 776.5 | 779.2 |
| 37.5° | 9909.7 | 8288.9 | 4691.5 | 1354.8 | 749.3 | 714.0 | 697.8 | 689.6 | 686.9 | 692.3 | 695.0 |
| 40° | 10064.5 | 8378.5 | 4322.3 | 985.5 | 686.9 | 662.5 | 638.0 | 613.6 | 613.6 | 632.6 | 635.3 |
| 42.5° | 9955.9 | 8278.0 | 3896.0 | 814.5 | 643.5 | 608.2 | 570.1 | 548.4 | 559.3 | 578.3 | 583.7 |
| 45° | 9725.1 | 8030.9 | 3426.3 | 719.5 | 600.0 | 553.9 | 510.4 | 496.8 | 507.7 | 532.1 | 537.6 |
| 47.5° | 9687.1 | 7868.0 | 2864.3 | 657.0 | 553.9 | 507.7 | 461.5 | 448.0 | 461.5 | 480.6 | 486.0 |
| 50° | 10064.5 | 8009.2 | 2239.9 | 602.7 | 510.4 | 458.8 | 420.8 | 407.2 | 415.4 | 426.3 | 431.7 |
| 52.5° | 10754.1 | 8533.2 | 1808.2 | 551.1 | 458.8 | 410.0 | 385.5 | 369.2 | 369.2 | 380.1 | 382.8 |
| 55° | 11772.2 | 9448.2 | 1561.1 | 491.4 | 399.1 | 372.0 | 350.2 | 333.9 | 333.9 | 339.4 | 342.1 |
| 57.5° | 12945.1 | 10555.9 | 1618.1 | 412.7 | 350.2 | 336.7 | 317.7 | 304.1 | 309.5 | 309.5 | 309.5 |
| 60° | 12782.2 | 10474.4 | 1732.2 | 347.5 | 309.5 | 304.1 | 287.8 | 282.4 | 295.9 | 285.1 | 279.6 |
| 62.5° | 9415.6 | 7235.5 | 906.8 | 285.1 | 266.1 | 260.6 | 249.8 | 260.6 | 279.6 | 249.8 | 238.9 |
| 65° | 4572.0 | 3502.3 | 363.8 | 233.5 | 225.3 | 219.9 | 214.5 | 230.8 | 241.6 | 195.5 | 184.6 |
| 67.5° | 1075.1 | 874.2 | 236.2 | 198.2 | 187.3 | 176.5 | 181.9 | 184.6 | 176.5 | 133.0 | 127.6 |
| 70° | 279.6 | 274.2 | 184.6 | 165.6 | 149.3 | 138.5 | 138.5 | 135.7 | 116.7 | 84.2 | 78.7 |
| 72.5° | 152.0 | 149.3 | 133.0 | 124.9 | 103.2 | 92.3 | 95.0 | 84.2 | 65.2 | 48.9 | 46.2 |
| 75° | 76.0 | 81.4 | 76.0 | 70.6 | 57.0 | 51.6 | 51.6 | 46.2 | 32.6 | 19.0 | 19.0 |
| 77.5° | 16.3 | 19.0 | 19.0 | 16.3 | 13.6 | 10.9 | 10.9 | 13.6 | 5.4 | 0.0 | 0.0 |
| 80° | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 | 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 .

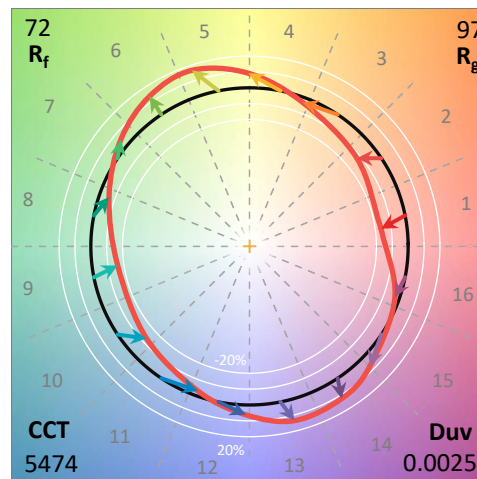
Test Information

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 | CRI (Ra): | 71.7 | R9: | -27.1 |
| CIE u': | 0.2052 | R1: | 70.6 | R10: | 40.8 |
| CIE v': | 0.4804 | R2: | 74.6 | R11: | 74.6 |
| Duv: | 0.0025 | R3: | 78.3 | R12: | 50.4 |
| CIE x: | 0.3330 | R4: | 73.8 | R13: | 70.0 |
| CIE y: | 0.3466 | R5: | 72.4 | R14: | 87.8 |
| CIE z: | 0.3204 | R6: | 67.5 | | |
| Peak Wavelength (nm): | 442 | R7: | 77.5 | | |
| Dominant Wavelength (nm): | 554 | R8: | 58.9 | | |
| Purity: | 4.1 | | | | |
| Rf: | 72.1 | | | | |
| Rg: | 97.2 | | | | |



Test Conditions

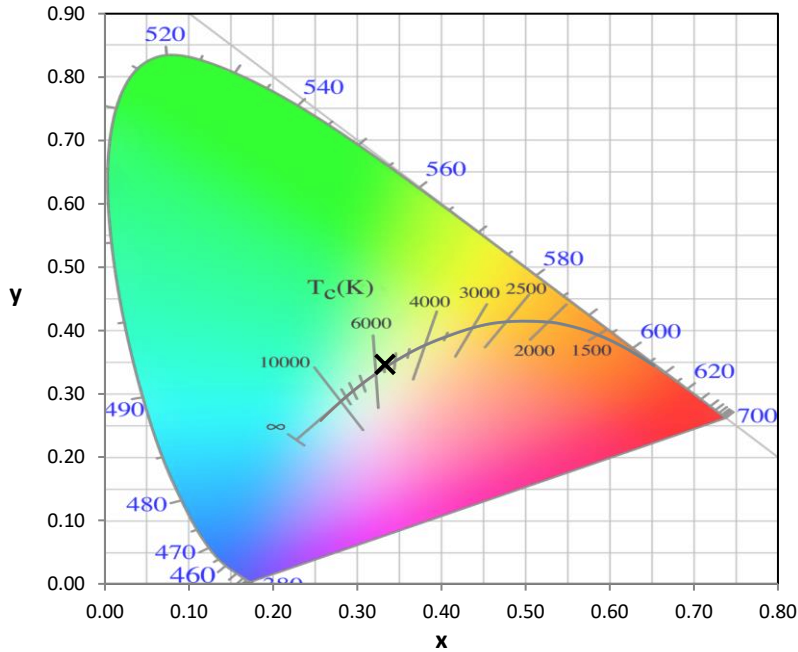
Stabilization Time: 240M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 24.6/31%
 Sphere Temperature (°C): 25.9

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 (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

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)