

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: P636383

Luminaire Tested: GWS-SA3F-760-U-SL3-W-GRSBK

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P636383
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-32)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA3F-760-U-SL3-W-GRSBK
Description: GALLEON WALL SLIM LUMINAIRE. (3) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III SPILL LIGHT ELIMINATOR 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: 14428.3 lumens
Efficiency: N/A
Efficacy: 78.8 lumens/watt
Luminous Opening: Rectangular (W 1.5' x L: 0.5' x H: 0')
IES Classification: Type II - Short
BUG Rating: B3 - U0 - G1

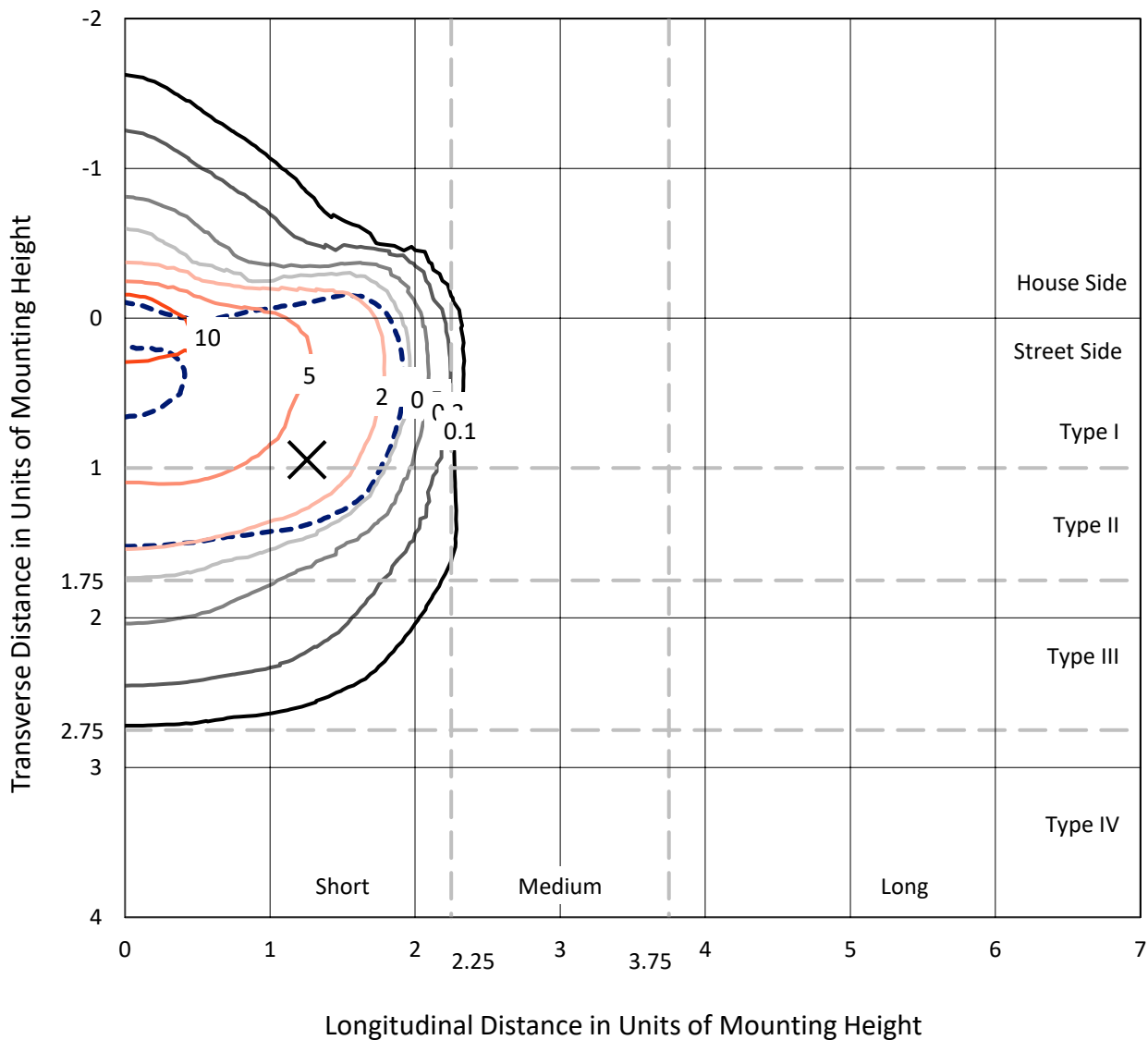
Input Watts (W): 183.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

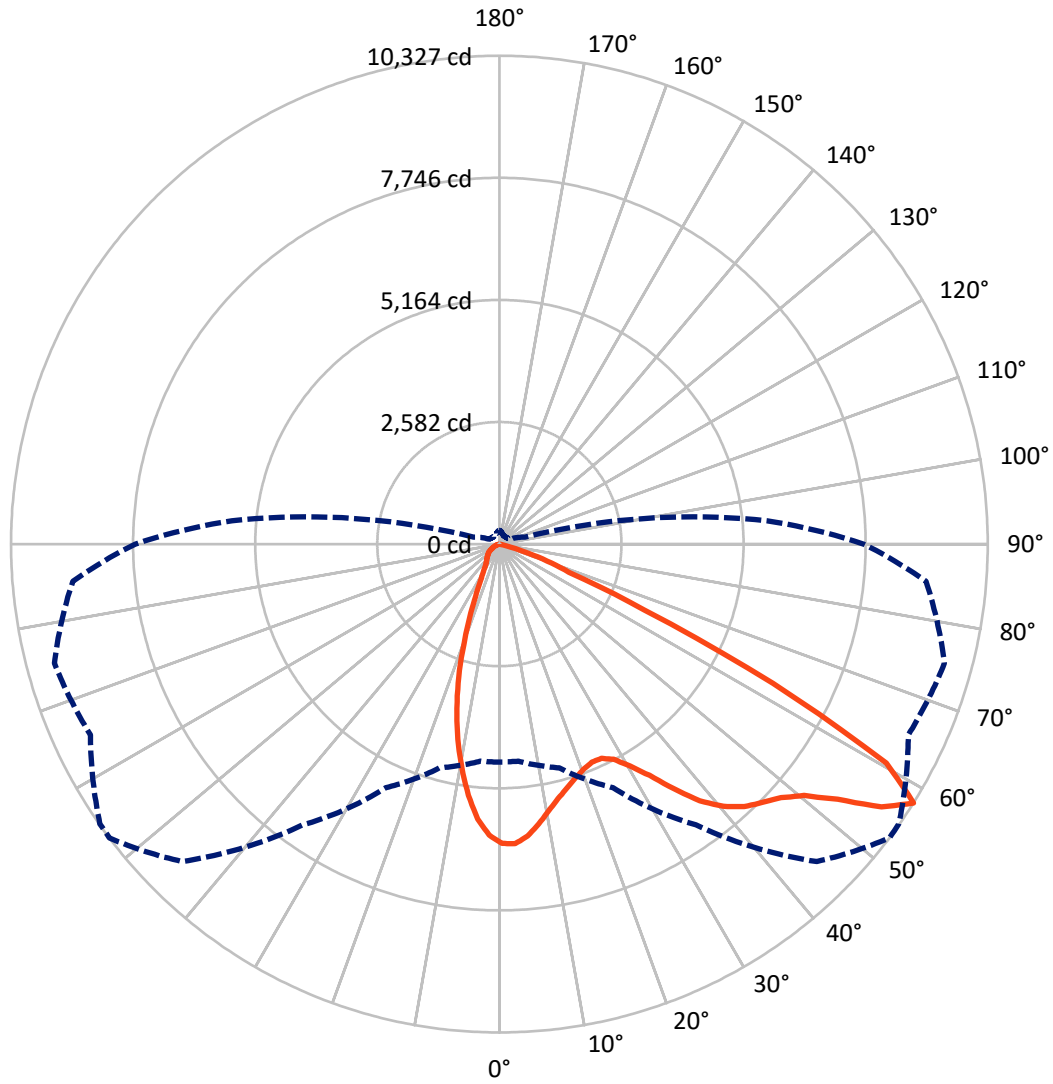
✕ Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 15.8 fc
 Type II - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 53-Deg Lateral - - - Horizontal Cone Through 57.5-Deg Vertical

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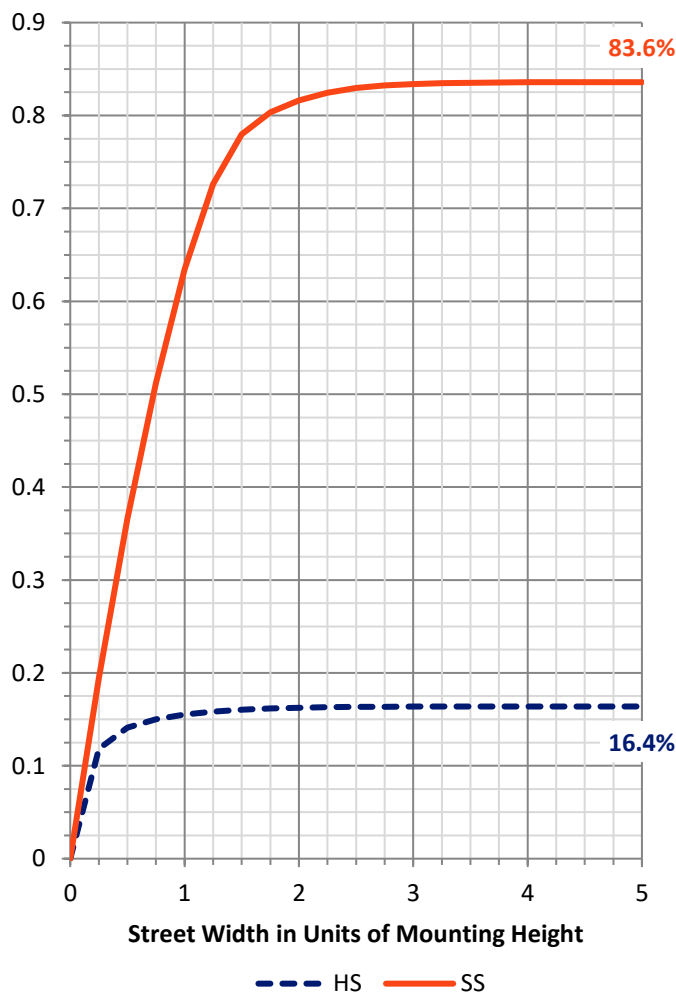
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 2383.4 | 0.0 | 2383.4 |
| | % Fixture | 16.5 | 0.0 | 16.5 |
| Street Side | Lumens | 12044.9 | 0.0 | 12044.9 |
| | % Fixture | 83.5 | 0.0 | 83.5 |
| Total | Lumens | 14428.3 | 0.0 | 14428.3 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 541.5 | 3.8 |
| 10°-20° | 1188.8 | 8.2 |
| 20°-30° | 1548.7 | 10.7 |
| 30°-40° | 2246.4 | 15.6 |
| 40°-50° | 3241.4 | 22.5 |
| 50°-60° | 3920.2 | 27.2 |
| 60°-70° | 1597.7 | 11.1 |
| 70°-80° | 143.6 | 1.0 |
| 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° | 14428.3 | 100.0 |
| 0°-180° | 14428.3 | 100.0 |

Coefficient of Utilization



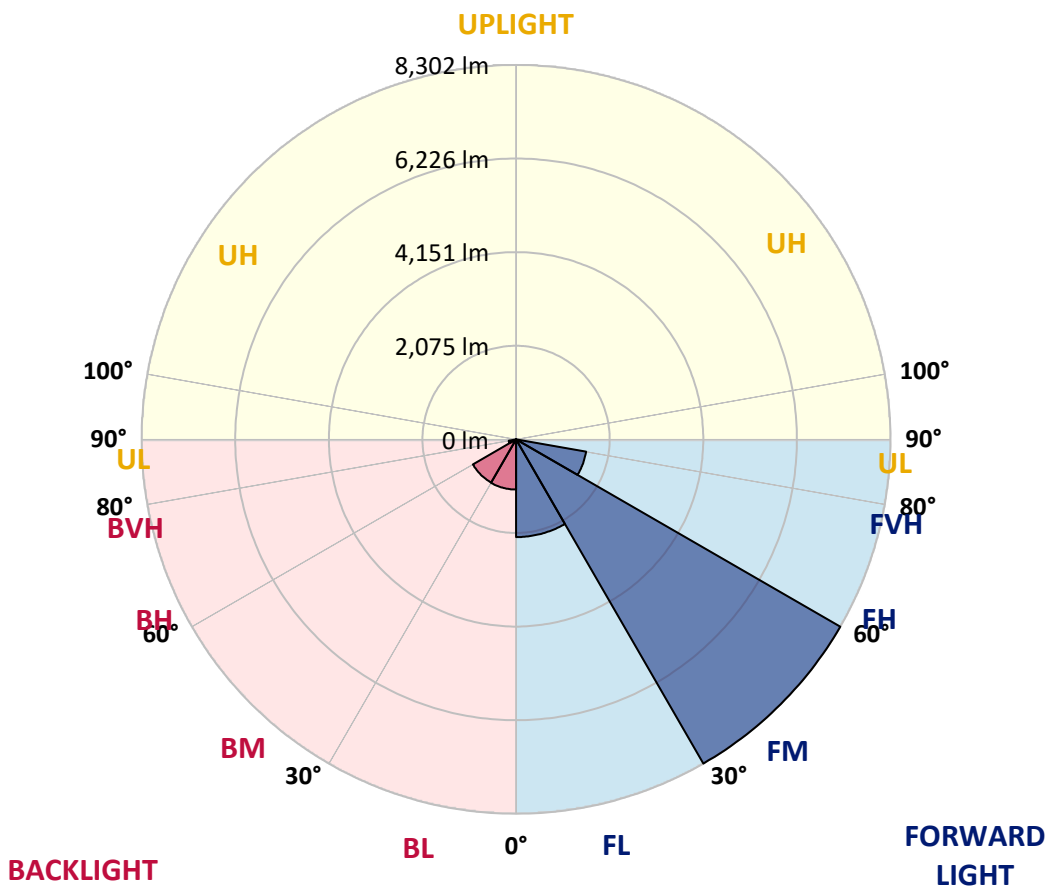
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 2166.7 | 15.0 | | | |
| FM (30°-60°) | 8301.8 | 57.5 | | | |
| FH (60°-80°) | 1576.5 | 10.9 | | | G1/1800 |
| FVH (80°-90°) | 0.0 | 0.0 | | | G0/10 |
| BL (0°-30°) | 1112.4 | 7.7 | B3/2500 | | |
| BM (30°-60°) | 1106.2 | 7.7 | B2/2500 | | |
| BH (60°-80°) | 164.8 | 1.1 | B1/500 | | G1/500 |
| 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: B3-U0-G1
 Type II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 53° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|---------|---------|--------|--------|--------|
| 0° | 6329.1 | 6329.1 | 6329.1 | 6329.1 | 6329.1 | 6329.1 | 6329.1 | 6329.1 | 6329.1 | 6329.1 | 6329.1 |
| 2.5° | 6240.7 | 6254.8 | 6279.6 | 6311.4 | 6332.6 | 6343.2 | 6343.2 | 6373.3 | 6353.8 | 6337.9 | 6320.2 |
| 5° | 5973.6 | 5987.8 | 6021.4 | 6072.7 | 6123.9 | 6161.1 | 6203.5 | 6235.4 | 6247.7 | 6247.7 | 6217.7 |
| 7.5° | 5597.0 | 5616.4 | 5637.6 | 5708.4 | 5819.8 | 5902.9 | 5975.4 | 6021.4 | 6088.6 | 6109.8 | 6067.4 |
| 10° | 5192.0 | 5211.5 | 5259.2 | 5356.5 | 5483.8 | 5607.6 | 5731.4 | 5789.7 | 5904.7 | 5964.8 | 5917.0 |
| 12.5° | 4848.9 | 4857.8 | 4921.4 | 5038.1 | 5200.8 | 5370.6 | 5520.9 | 5581.0 | 5743.7 | 5833.9 | 5777.3 |
| 15° | 4566.0 | 4571.3 | 4635.0 | 4764.0 | 4951.5 | 5160.2 | 5349.4 | 5411.3 | 5611.1 | 5747.3 | 5662.4 |
| 17.5° | 4352.0 | 4353.8 | 4408.6 | 4548.3 | 4744.6 | 4976.3 | 5200.8 | 5276.9 | 5535.1 | 5699.5 | 5572.2 |
| 20° | 4244.1 | 4238.8 | 4277.7 | 4399.8 | 4585.4 | 4817.1 | 5082.4 | 5176.1 | 5492.6 | 5692.5 | 5503.2 |
| 22.5° | 4245.9 | 4233.5 | 4249.4 | 4336.1 | 4493.5 | 4711.0 | 5008.1 | 5114.2 | 5496.2 | 5722.5 | 5444.9 |
| 25° | 4346.7 | 4329.0 | 4332.6 | 4378.5 | 4489.9 | 4688.0 | 5018.7 | 5131.9 | 5566.9 | 5823.3 | 5423.7 |
| 27.5° | 4516.5 | 4497.0 | 4497.0 | 4520.0 | 4580.1 | 4760.5 | 5151.3 | 5280.4 | 5756.1 | 6019.6 | 5467.9 |
| 30° | 4735.8 | 4716.3 | 4709.2 | 4732.2 | 4781.7 | 4948.0 | 5446.6 | 5581.0 | 6079.7 | 6341.5 | 5609.3 |
| 32.5° | 4986.9 | 4963.9 | 4976.3 | 5008.1 | 5055.8 | 5285.7 | 5826.9 | 6005.5 | 6484.7 | 6774.7 | 5864.0 |
| 35° | 5252.1 | 5232.7 | 5289.3 | 5358.2 | 5432.5 | 5754.3 | 6352.1 | 6507.7 | 6981.6 | 7314.1 | 6253.0 |
| 37.5° | 5505.0 | 5496.2 | 5614.6 | 5759.7 | 5913.5 | 6316.7 | 6886.1 | 7006.4 | 7407.8 | 7901.2 | 6728.7 |
| 40° | 5757.9 | 5756.1 | 5959.5 | 6214.1 | 6459.9 | 6877.3 | 7291.1 | 7390.1 | 7667.7 | 8357.4 | 7185.0 |
| 42.5° | 6040.8 | 6040.8 | 6322.0 | 6661.5 | 6988.7 | 7351.2 | 7588.2 | 7632.4 | 7784.5 | 8620.9 | 7528.0 |
| 45° | 6311.4 | 6327.3 | 6652.7 | 7047.0 | 7434.3 | 7720.8 | 7793.3 | 7796.8 | 7832.2 | 8776.5 | 7812.8 |
| 47.5° | 6525.4 | 6539.5 | 6928.6 | 7383.0 | 7800.4 | 8002.0 | 8012.6 | 7996.7 | 7957.8 | 8925.1 | 8032.0 |
| 50° | 6698.7 | 6719.9 | 7126.6 | 7607.6 | 8051.5 | 8272.5 | 8353.9 | 8338.0 | 8238.9 | 9084.2 | 8185.9 |
| 52.5° | 6783.6 | 6813.6 | 7195.6 | 7719.0 | 8330.9 | 8735.9 | 8962.2 | 8999.3 | 8659.8 | 9172.6 | 8332.7 |
| 55° | 6104.5 | 6148.7 | 6500.6 | 7216.8 | 8486.5 | 9452.1 | 9807.5 | 9800.4 | 9116.1 | 9436.1 | 8689.9 |
| 57.5° | 4610.2 | 4606.7 | 4898.4 | 5681.8 | 7248.6 | 9492.7 | 10327.4 | 10313.3 | 9542.2 | 9742.1 | 9055.9 |
| 60° | 3138.9 | 3117.7 | 3195.5 | 3573.9 | 5068.2 | 7733.2 | 9399.0 | 9590.0 | 9239.8 | 8999.3 | 7689.0 |
| 62.5° | 2583.6 | 2564.2 | 2539.4 | 2435.1 | 2910.8 | 4817.1 | 6493.5 | 6783.6 | 6737.6 | 6254.8 | 4822.4 |
| 65° | 2115.0 | 2130.9 | 2199.9 | 2155.7 | 2024.8 | 2470.4 | 3370.6 | 3542.1 | 3237.9 | 2725.1 | 1685.3 |
| 67.5° | 1559.7 | 1566.8 | 1657.0 | 1890.4 | 1819.7 | 1644.6 | 1586.2 | 1614.5 | 946.1 | 435.0 | 281.2 |
| 70° | 921.3 | 926.6 | 1009.8 | 1322.8 | 1476.6 | 1262.6 | 1071.6 | 1055.7 | 374.9 | 116.7 | 127.3 |
| 72.5° | 521.7 | 511.1 | 527.0 | 629.5 | 804.6 | 670.2 | 551.7 | 502.2 | 113.2 | 65.4 | 65.4 |
| 75° | 247.6 | 240.5 | 206.9 | 194.5 | 176.8 | 113.2 | 70.7 | 60.1 | 28.3 | 26.5 | 26.5 |
| 77.5° | 1.8 | 5.3 | 3.5 | 5.3 | 5.3 | 3.5 | 1.8 | 1.8 | 5.3 | 5.3 | 7.1 |
| 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: P636383

CATALOG NUMBER: GWS-SA3F-760-U-SL3-W-GRSBK

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 6329.1 | 6329.1 | 6329.1 | 6329.1 | 6329.1 | 6329.1 | 6329.1 | 6329.1 | 6329.1 | 6329.1 | 6329.1 |
| 2.5° | 6288.4 | 6235.4 | 6223.0 | 6219.4 | 6169.9 | 6116.9 | 6062.0 | 6040.8 | 6009.0 | 5989.5 | 6005.5 |
| 5° | 6169.9 | 6093.9 | 6026.7 | 5964.8 | 5855.1 | 5734.9 | 5630.6 | 5563.4 | 5499.7 | 5457.3 | 5467.9 |
| 7.5° | 6001.9 | 5902.9 | 5749.0 | 5591.7 | 5390.1 | 5209.7 | 5008.1 | 4884.3 | 4769.4 | 4705.7 | 4735.8 |
| 10° | 5823.3 | 5692.5 | 5446.6 | 5179.6 | 4863.1 | 4580.1 | 4291.9 | 4056.7 | 3920.5 | 3791.4 | 3805.6 |
| 12.5° | 5648.2 | 5474.9 | 5107.1 | 4702.2 | 4302.5 | 3885.2 | 3450.1 | 3124.7 | 2901.9 | 2741.0 | 2716.3 |
| 15° | 5485.6 | 5262.7 | 4776.4 | 4242.4 | 3697.7 | 3142.4 | 2587.2 | 2122.1 | 1863.9 | 1704.7 | 1694.1 |
| 17.5° | 5340.5 | 5064.7 | 4433.4 | 3761.4 | 3078.8 | 2367.9 | 1729.5 | 1381.1 | 1232.6 | 1163.6 | 1156.5 |
| 20° | 5200.8 | 4864.8 | 4083.2 | 3273.3 | 2403.2 | 1662.3 | 1193.7 | 1032.7 | 985.0 | 956.7 | 960.2 |
| 22.5° | 5066.4 | 4647.3 | 3715.4 | 2732.2 | 1802.0 | 1167.1 | 924.9 | 863.0 | 857.7 | 861.2 | 863.0 |
| 25° | 4953.3 | 4447.5 | 3337.0 | 2210.5 | 1285.6 | 889.5 | 772.8 | 755.1 | 771.0 | 794.0 | 797.5 |
| 27.5° | 4894.9 | 4284.8 | 2967.4 | 1685.3 | 930.2 | 723.3 | 670.2 | 677.3 | 705.6 | 730.3 | 733.9 |
| 30° | 4910.8 | 4162.8 | 2585.4 | 1222.0 | 716.2 | 610.1 | 592.4 | 606.6 | 634.9 | 657.8 | 661.4 |
| 32.5° | 5024.0 | 4100.9 | 2194.6 | 889.5 | 588.9 | 532.3 | 525.2 | 535.8 | 560.6 | 578.3 | 580.0 |
| 35° | 5248.6 | 4115.0 | 1823.2 | 680.8 | 505.8 | 473.9 | 472.2 | 479.2 | 491.6 | 504.0 | 505.8 |
| 37.5° | 5579.3 | 4230.0 | 1457.2 | 565.9 | 458.0 | 435.0 | 428.0 | 428.0 | 436.8 | 442.1 | 445.6 |
| 40° | 5934.7 | 4403.3 | 1167.1 | 500.5 | 424.4 | 399.7 | 385.5 | 380.2 | 387.3 | 394.4 | 396.1 |
| 42.5° | 6228.3 | 4576.6 | 947.9 | 454.5 | 397.9 | 364.3 | 346.6 | 343.1 | 351.9 | 364.3 | 367.8 |
| 45° | 6452.9 | 4711.0 | 790.5 | 417.3 | 367.8 | 330.7 | 311.2 | 311.2 | 327.2 | 348.4 | 351.9 |
| 47.5° | 6658.0 | 4818.9 | 673.8 | 383.7 | 339.5 | 300.6 | 281.2 | 284.7 | 311.2 | 339.5 | 344.8 |
| 50° | 6797.7 | 4905.5 | 587.1 | 353.7 | 316.5 | 275.9 | 258.2 | 265.3 | 297.1 | 330.7 | 336.0 |
| 52.5° | 6948.0 | 5011.6 | 530.5 | 327.2 | 295.3 | 256.4 | 240.5 | 245.8 | 281.2 | 318.3 | 325.4 |
| 55° | 7363.6 | 5367.1 | 528.7 | 291.8 | 258.2 | 229.9 | 222.8 | 224.6 | 260.0 | 302.4 | 311.2 |
| 57.5° | 7703.1 | 5680.1 | 564.1 | 245.8 | 215.7 | 201.6 | 198.1 | 199.8 | 231.7 | 279.4 | 290.0 |
| 60° | 6373.3 | 4413.9 | 466.9 | 203.4 | 180.4 | 176.8 | 171.5 | 175.1 | 205.1 | 247.6 | 256.4 |
| 62.5° | 3772.0 | 2523.5 | 222.8 | 155.6 | 153.9 | 150.3 | 145.0 | 152.1 | 180.4 | 217.5 | 222.8 |
| 65° | 1289.2 | 748.0 | 141.5 | 127.3 | 130.9 | 125.6 | 120.3 | 127.3 | 152.1 | 173.3 | 175.1 |
| 67.5° | 247.6 | 198.1 | 113.2 | 106.1 | 107.9 | 97.3 | 95.5 | 102.6 | 116.7 | 120.3 | 118.5 |
| 70° | 129.1 | 114.9 | 86.7 | 86.7 | 83.1 | 69.0 | 69.0 | 76.0 | 76.0 | 70.7 | 69.0 |
| 72.5° | 67.2 | 63.7 | 56.6 | 63.7 | 53.1 | 42.4 | 42.4 | 46.0 | 42.4 | 35.4 | 35.4 |
| 75° | 26.5 | 26.5 | 24.8 | 31.8 | 23.0 | 19.5 | 17.7 | 21.2 | 15.9 | 12.4 | 12.4 |
| 77.5° | 7.1 | 7.1 | 7.1 | 8.8 | 5.3 | 5.3 | 3.5 | 3.5 | 1.8 | 0.0 | 0.0 |
| 80° | 0.0 | 1.8 | 0.0 | 1.8 | 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 | 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 |

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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

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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 | | | |

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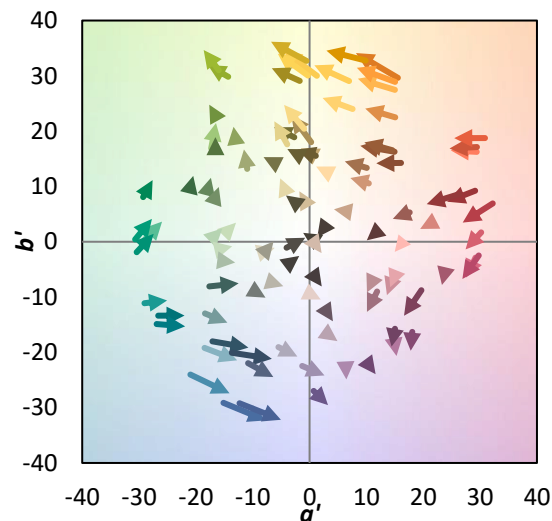
TM-30-18

Summary

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



Color Vector Graphics



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

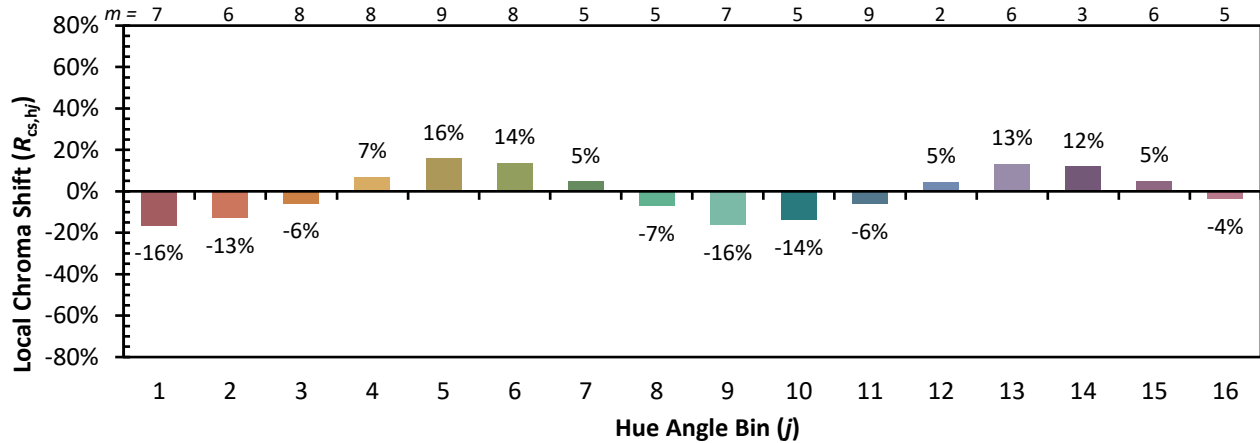
| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 54 | CES51 = 88 | CES76 = 43 |
| CES02 = 59 | CES27 = 79 | CES52 = 90 | CES77 = 64 |
| CES03 = 30 | CES28 = 77 | CES53 = 77 | CES78 = 46 |
| CES04 = 69 | CES29 = 50 | CES54 = 81 | CES79 = 74 |
| CES05 = 46 | CES30 = 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 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)