

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: P628961

Luminaire Tested: GWS-SA1A-760-U-SL3-W-GRSWH

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P628961
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-33)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA1A-760-U-SL3-W-GRSWH
Description: GALLEON WALL SLIM LUMINAIRE. (1) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III SPILL LIGHT ELIMINATOR OPTICS W/ FACTORY INSTALLED GLARE SHIELD, WH
Light Source: (16) 5700K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2402.7 lumens
Efficiency: N/A
Efficacy: 122.0 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type II - Short
BUG Rating: B1 - U0 - G1

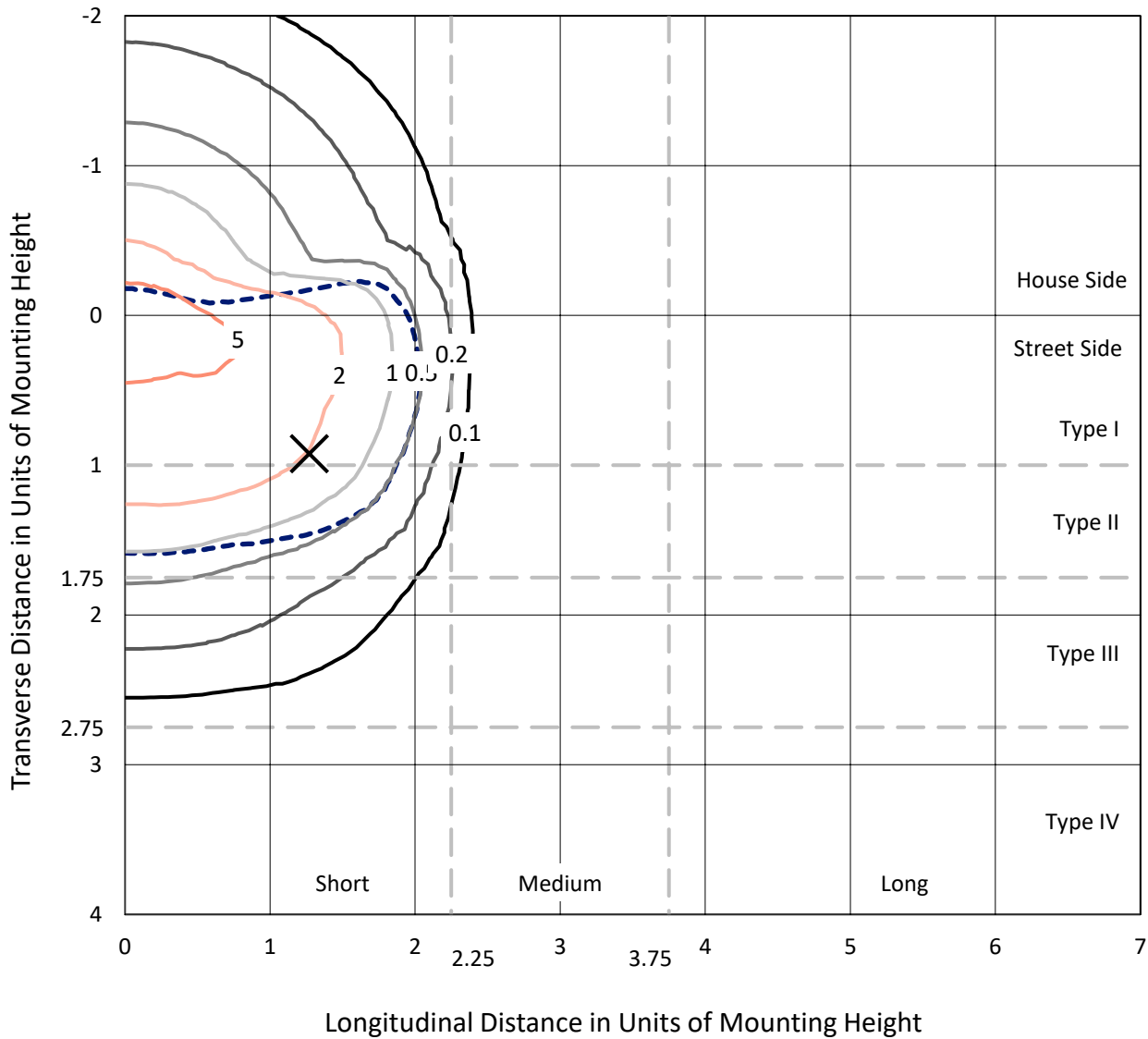
Input Watts (W): 19.7
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P628961
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Iso-Footcandle Lines of Horizontal Illumination

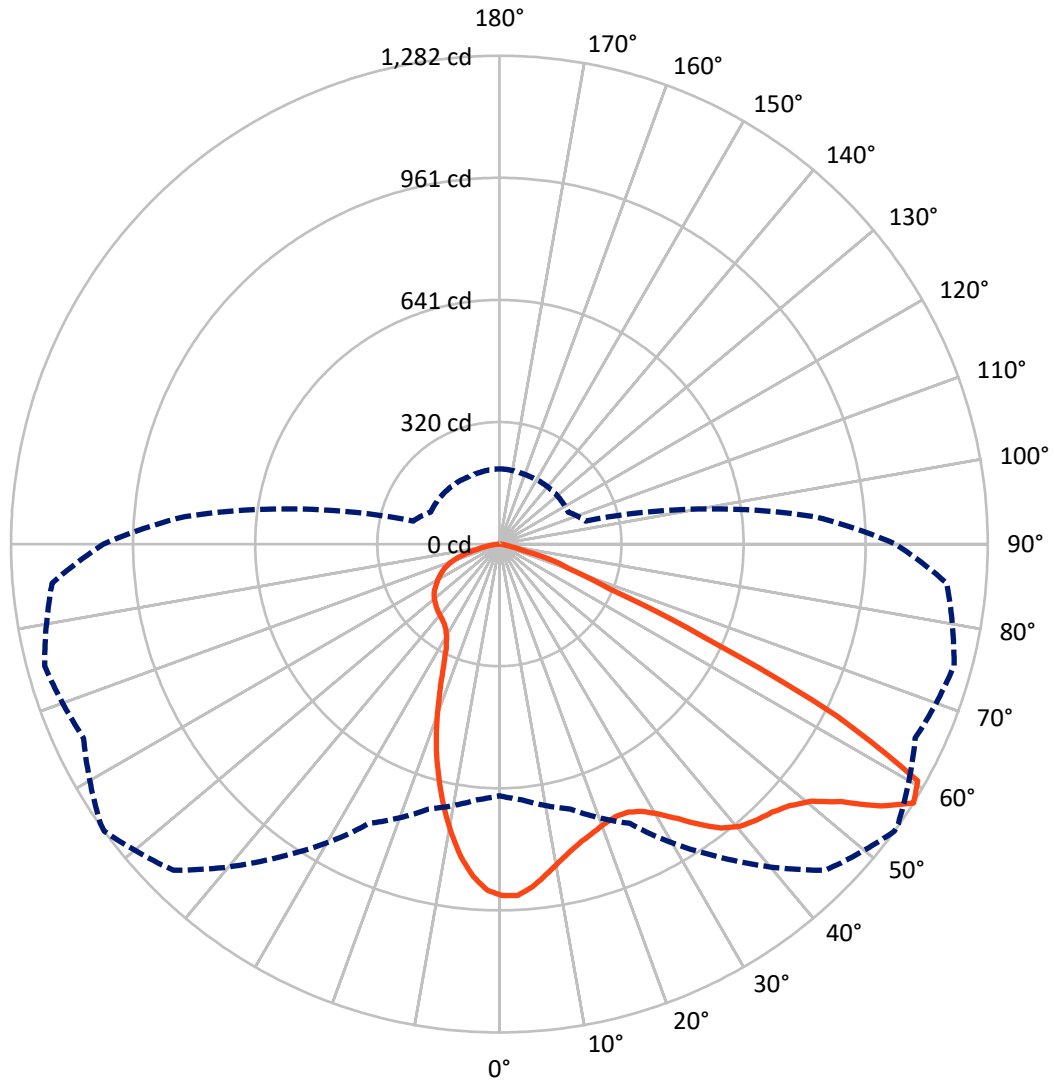
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 9.2 fc
 Type II - Short - N/A

REPORT NUMBER: P628961
CATALOG NUMBER: GWS-SA1A-760-U-SL3-W-GRSWH

Luminous Intensity Polar Plot



— Vertical Plane Through 54-Deg Lateral - - - Horizontal Cone Through 57.5-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 698.5 | 0.0 | 698.5 |
| | % Fixture | 29.1 | 0.0 | 29.1 |
| Street Side | Lumens | 1704.2 | 0.0 | 1704.2 |
| | % Fixture | 70.9 | 0.0 | 70.9 |
| Total | Lumens | 2402.7 | 0.0 | 2402.7 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 81.1 | 3.4 |
| 10°-20° | 193.5 | 8.1 |
| 20°-30° | 267.7 | 11.1 |
| 30°-40° | 372.0 | 15.5 |
| 40°-50° | 491.3 | 20.4 |
| 50°-60° | 583.9 | 24.3 |
| 60°-70° | 323.5 | 13.5 |
| 70°-80° | 80.6 | 3.4 |
| 80°-90° | 9.2 | 0.4 |
| 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° | 2402.7 | 100.0 |
| 0°-180° | 2402.7 | 100.0 |

Coefficient of Utilization



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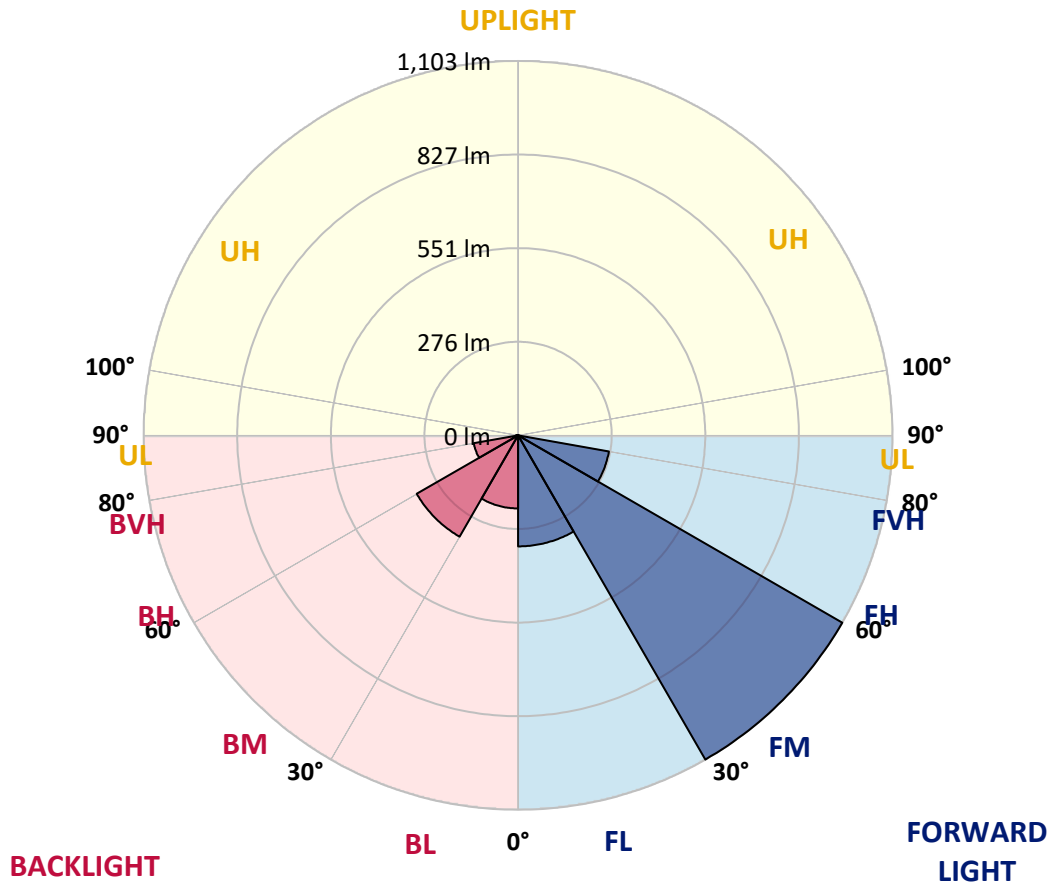
CATALOG NUMBER: GWS-SA1A-760-U-SL3-W-GRSWH

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|--------|
| | | | B | U | G |
| FL (0°-30°) | 327.0 | 13.6 | | | |
| FM (30°-60°) | 1102.6 | 45.9 | | | |
| FH (60°-80°) | 271.7 | 11.3 | | | G0/660 |
| FVH (80°-90°) | 2.9 | 0.1 | | | G0/10 |
| BL (0°-30°) | 215.2 | 9.0 | B1/500 | | |
| BM (30°-60°) | 344.6 | 14.3 | B1/1000 | | |
| BH (60°-80°) | 132.4 | 5.5 | B1/500 | | G1/500 |
| BVH (80°-90°) | 6.3 | 0.3 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G1

Type II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 54° | 55° | 65° | 75° | 85° |
|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 922.5 | 922.5 | 922.5 | 922.5 | 922.5 | 922.5 | 922.5 | 922.5 | 922.5 | 922.5 | 922.5 |
| 2.5° | 905.2 | 907.0 | 908.3 | 912.6 | 916.3 | 919.6 | 923.1 | 923.1 | 922.9 | 922.2 | 921.0 |
| 5° | 869.4 | 871.4 | 874.3 | 880.3 | 888.3 | 894.1 | 903.5 | 904.4 | 908.5 | 910.1 | 909.3 |
| 7.5° | 827.8 | 828.5 | 832.2 | 840.0 | 852.7 | 863.0 | 876.6 | 878.2 | 888.1 | 893.9 | 892.8 |
| 10° | 782.4 | 780.3 | 786.9 | 798.4 | 815.1 | 832.4 | 849.8 | 851.3 | 867.1 | 878.0 | 877.2 |
| 12.5° | 740.8 | 741.0 | 747.6 | 761.6 | 782.4 | 803.8 | 827.2 | 830.5 | 850.1 | 864.0 | 862.6 |
| 15° | 706.1 | 706.9 | 714.9 | 730.8 | 754.4 | 779.9 | 809.1 | 812.2 | 836.9 | 855.4 | 851.3 |
| 17.5° | 678.3 | 679.1 | 686.1 | 704.2 | 729.5 | 760.4 | 796.0 | 799.0 | 829.7 | 851.7 | 843.3 |
| 20° | 659.2 | 658.8 | 665.6 | 682.8 | 709.0 | 742.5 | 784.4 | 789.0 | 827.4 | 853.1 | 837.9 |
| 22.5° | 651.4 | 651.2 | 656.1 | 670.3 | 694.8 | 728.7 | 777.5 | 783.6 | 829.9 | 859.5 | 834.6 |
| 25° | 655.3 | 654.5 | 658.8 | 669.3 | 688.8 | 723.4 | 779.5 | 786.1 | 840.4 | 872.7 | 835.2 |
| 27.5° | 667.4 | 666.4 | 670.1 | 679.5 | 694.4 | 728.9 | 793.9 | 801.5 | 862.6 | 896.7 | 843.5 |
| 30° | 685.9 | 685.3 | 689.0 | 698.1 | 711.0 | 747.4 | 821.5 | 830.1 | 896.9 | 934.2 | 861.4 |
| 32.5° | 707.5 | 706.5 | 713.1 | 723.6 | 738.6 | 781.2 | 858.5 | 869.8 | 937.7 | 982.3 | 891.4 |
| 35° | 731.8 | 731.0 | 740.0 | 755.2 | 776.8 | 828.0 | 903.3 | 915.7 | 979.2 | 1036.8 | 931.3 |
| 37.5° | 755.4 | 755.4 | 772.9 | 795.5 | 822.7 | 879.1 | 945.5 | 953.3 | 1008.0 | 1085.1 | 974.1 |
| 40° | 776.4 | 777.7 | 804.0 | 837.9 | 872.5 | 925.1 | 973.3 | 979.8 | 1020.8 | 1118.5 | 1011.3 |
| 42.5° | 799.7 | 800.7 | 831.3 | 875.8 | 916.9 | 962.4 | 990.1 | 993.4 | 1023.2 | 1135.1 | 1037.6 |
| 45° | 818.2 | 819.6 | 857.7 | 905.2 | 955.6 | 990.3 | 1003.5 | 1006.4 | 1026.7 | 1144.2 | 1056.8 |
| 47.5° | 827.8 | 829.9 | 873.5 | 928.8 | 981.7 | 1015.4 | 1025.5 | 1026.7 | 1041.1 | 1160.0 | 1079.8 |
| 50° | 826.2 | 830.3 | 879.5 | 940.6 | 1001.0 | 1040.7 | 1060.9 | 1062.9 | 1070.5 | 1183.2 | 1106.7 |
| 52.5° | 840.8 | 842.6 | 892.2 | 954.5 | 1028.6 | 1087.4 | 1122.4 | 1125.2 | 1121.7 | 1200.7 | 1122.8 |
| 55° | 816.5 | 825.4 | 876.4 | 952.5 | 1070.5 | 1159.6 | 1213.5 | 1212.0 | 1168.2 | 1220.3 | 1149.5 |
| 57.5° | 660.4 | 673.4 | 720.1 | 808.5 | 1001.4 | 1210.2 | 1281.6 | 1278.1 | 1204.2 | 1235.3 | 1178.5 |
| 60° | 457.2 | 459.3 | 501.4 | 564.2 | 772.9 | 1069.1 | 1261.6 | 1269.2 | 1210.8 | 1216.4 | 1124.8 |
| 62.5° | 365.7 | 365.1 | 369.0 | 370.6 | 491.6 | 751.5 | 995.9 | 1023.6 | 1006.0 | 947.7 | 797.2 |
| 65° | 312.2 | 314.5 | 326.0 | 320.0 | 320.9 | 423.3 | 595.0 | 598.9 | 586.6 | 565.6 | 421.6 |
| 67.5° | 244.3 | 248.2 | 268.6 | 291.9 | 284.4 | 272.5 | 308.7 | 306.9 | 241.9 | 187.2 | 154.7 |
| 70° | 153.0 | 155.5 | 177.3 | 229.1 | 247.6 | 223.8 | 198.5 | 197.7 | 129.6 | 106.5 | 116.8 |
| 72.5° | 89.3 | 89.7 | 95.8 | 127.7 | 164.3 | 153.0 | 146.0 | 140.7 | 83.3 | 84.9 | 93.2 |
| 75° | 49.2 | 49.2 | 49.0 | 55.1 | 64.8 | 57.4 | 55.5 | 54.1 | 55.7 | 63.1 | 69.3 |
| 77.5° | 10.3 | 10.5 | 11.1 | 14.6 | 18.9 | 23.0 | 29.0 | 29.2 | 36.4 | 42.2 | 47.1 |
| 80° | 4.7 | 4.9 | 6.2 | 7.8 | 10.1 | 13.4 | 17.7 | 17.9 | 22.0 | 26.5 | 29.8 |
| 82.5° | 2.5 | 2.7 | 3.3 | 4.1 | 5.3 | 7.0 | 9.9 | 9.9 | 13.2 | 15.6 | 17.7 |
| 85° | 0.8 | 0.8 | 1.2 | 1.6 | 2.3 | 2.9 | 3.9 | 3.9 | 5.8 | 7.6 | 8.8 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.4 | 0.8 | 0.8 | 1.0 | 1.2 | 2.1 |
| 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: P628961

CATALOG NUMBER: GWS-SA1A-760-U-SL3-W-GRSWH

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 922.5 | 922.5 | 922.5 | 922.5 | 922.5 | 922.5 | 922.5 | 922.5 | 922.5 | 922.5 | 922.5 |
| 2.5° | 918.3 | 912.0 | 912.2 | 913.4 | 909.5 | 903.5 | 899.6 | 894.7 | 891.6 | 891.0 | 893.2 |
| 5° | 905.2 | 897.8 | 892.6 | 887.3 | 876.2 | 863.0 | 852.7 | 844.3 | 838.7 | 836.7 | 834.2 |
| 7.5° | 887.1 | 877.4 | 864.5 | 849.4 | 829.3 | 805.8 | 789.4 | 774.0 | 763.3 | 760.2 | 758.7 |
| 10° | 869.0 | 855.0 | 832.0 | 804.0 | 770.5 | 738.8 | 709.0 | 686.1 | 668.0 | 657.7 | 661.0 |
| 12.5° | 850.3 | 833.0 | 797.0 | 754.0 | 707.3 | 659.6 | 620.5 | 582.7 | 553.5 | 538.9 | 534.5 |
| 15° | 833.8 | 810.4 | 760.2 | 702.0 | 639.9 | 579.8 | 523.2 | 466.5 | 429.4 | 409.3 | 403.7 |
| 17.5° | 819.8 | 789.4 | 721.3 | 648.9 | 574.7 | 489.1 | 419.6 | 366.9 | 341.6 | 330.5 | 329.7 |
| 20° | 806.0 | 768.8 | 682.8 | 591.7 | 499.4 | 403.5 | 341.4 | 316.7 | 307.7 | 303.8 | 303.6 |
| 22.5° | 793.7 | 747.2 | 642.3 | 534.5 | 424.5 | 339.2 | 305.0 | 294.3 | 291.9 | 291.9 | 291.4 |
| 25° | 783.2 | 725.6 | 600.8 | 473.9 | 356.8 | 301.9 | 286.1 | 281.6 | 282.6 | 284.4 | 284.7 |
| 27.5° | 778.9 | 708.8 | 560.7 | 411.6 | 310.2 | 280.3 | 273.1 | 272.5 | 275.4 | 278.3 | 278.7 |
| 30° | 783.4 | 697.2 | 519.5 | 351.9 | 282.2 | 267.2 | 263.9 | 265.1 | 268.6 | 271.5 | 271.5 |
| 32.5° | 797.4 | 691.5 | 477.6 | 308.3 | 265.9 | 257.9 | 256.9 | 258.1 | 260.8 | 262.4 | 262.6 |
| 35° | 821.1 | 693.7 | 434.2 | 278.9 | 255.4 | 251.1 | 250.9 | 251.7 | 252.8 | 253.8 | 254.0 |
| 37.5° | 850.9 | 703.8 | 387.7 | 261.8 | 248.7 | 246.2 | 245.8 | 245.6 | 245.8 | 245.8 | 246.0 |
| 40° | 880.1 | 719.0 | 346.2 | 251.7 | 243.9 | 241.9 | 240.8 | 239.4 | 239.2 | 238.8 | 238.6 |
| 42.5° | 901.7 | 730.8 | 313.0 | 244.5 | 239.6 | 237.1 | 235.9 | 233.6 | 233.4 | 233.2 | 233.0 |
| 45° | 917.9 | 740.6 | 285.5 | 237.6 | 235.1 | 232.8 | 230.2 | 228.1 | 228.5 | 228.9 | 228.9 |
| 47.5° | 936.2 | 749.3 | 265.3 | 231.0 | 229.5 | 227.3 | 224.0 | 222.5 | 224.0 | 225.4 | 225.4 |
| 50° | 958.4 | 761.4 | 248.9 | 224.4 | 223.8 | 221.1 | 218.2 | 217.6 | 219.2 | 221.3 | 221.3 |
| 52.5° | 974.7 | 771.9 | 237.1 | 217.8 | 217.8 | 214.3 | 211.8 | 211.6 | 213.5 | 215.5 | 215.8 |
| 55° | 1005.1 | 796.4 | 233.0 | 210.2 | 209.4 | 206.7 | 204.9 | 203.4 | 205.7 | 207.5 | 207.5 |
| 57.5° | 1039.5 | 828.9 | 234.1 | 199.3 | 198.3 | 197.4 | 196.0 | 194.4 | 195.0 | 197.0 | 197.2 |
| 60° | 966.7 | 765.9 | 222.7 | 188.4 | 187.8 | 187.4 | 185.5 | 182.6 | 183.5 | 185.1 | 185.3 |
| 62.5° | 675.2 | 509.0 | 180.2 | 174.8 | 176.9 | 176.7 | 174.2 | 170.9 | 171.1 | 173.4 | 173.4 |
| 65° | 350.5 | 275.4 | 158.2 | 162.5 | 165.6 | 164.3 | 160.2 | 157.3 | 156.9 | 159.8 | 159.2 |
| 67.5° | 151.2 | 150.3 | 144.0 | 149.5 | 152.8 | 150.1 | 145.8 | 141.1 | 141.5 | 142.5 | 141.7 |
| 70° | 121.8 | 125.5 | 128.1 | 134.1 | 136.8 | 131.8 | 127.1 | 124.4 | 122.2 | 122.0 | 120.5 |
| 72.5° | 97.3 | 102.4 | 108.4 | 114.6 | 115.4 | 110.4 | 104.5 | 102.0 | 98.5 | 98.3 | 96.9 |
| 75° | 73.2 | 77.5 | 82.3 | 87.2 | 87.2 | 82.5 | 78.6 | 77.3 | 73.2 | 72.0 | 70.8 |
| 77.5° | 50.0 | 52.7 | 56.4 | 57.6 | 58.8 | 57.0 | 53.1 | 51.0 | 46.3 | 45.0 | 43.4 |
| 80° | 31.5 | 33.3 | 35.6 | 36.4 | 37.6 | 35.4 | 32.3 | 30.0 | 26.7 | 25.7 | 24.9 |
| 82.5° | 18.9 | 20.2 | 21.6 | 22.0 | 23.0 | 21.4 | 18.5 | 16.9 | 15.0 | 14.2 | 13.6 |
| 85° | 9.7 | 10.3 | 11.1 | 11.3 | 11.1 | 9.5 | 8.4 | 7.6 | 6.4 | 6.2 | 5.8 |
| 87.5° | 2.5 | 2.9 | 3.1 | 2.9 | 2.7 | 2.1 | 1.4 | 1.0 | 0.4 | 0.4 | 0.2 |
| 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

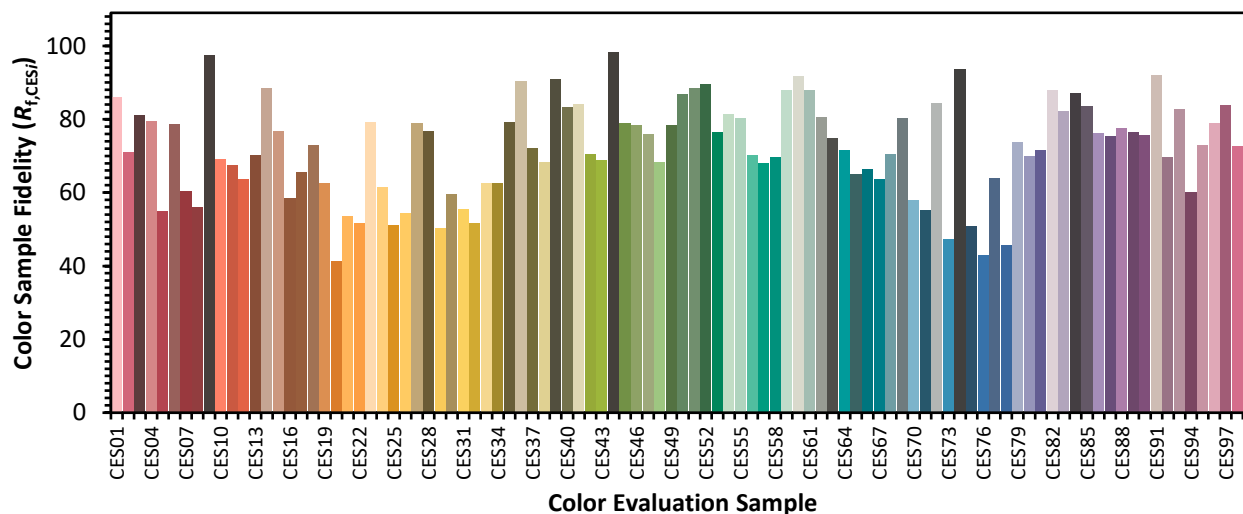


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Individual Sample Fidelity Index ($R_{f,i}$)

| | | | |
|------------|------------|------------|------------|
| 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)