

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: P631742

Luminaire Tested: GWS-SA2B-730-U-T4W-W

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P631742
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-52)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA2B-730-U-T4W-W
Description: GALLEON WALL SLIM LUMINAIRE. (2) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV WIDE OPTICS
Light Source: (32) 3000K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6230.5 lumens
Efficiency: N/A
Efficacy: 134.3 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 0.5' x H: 0')
IES Classification: Type III - Short
BUG Rating: B1 - U0 - G2

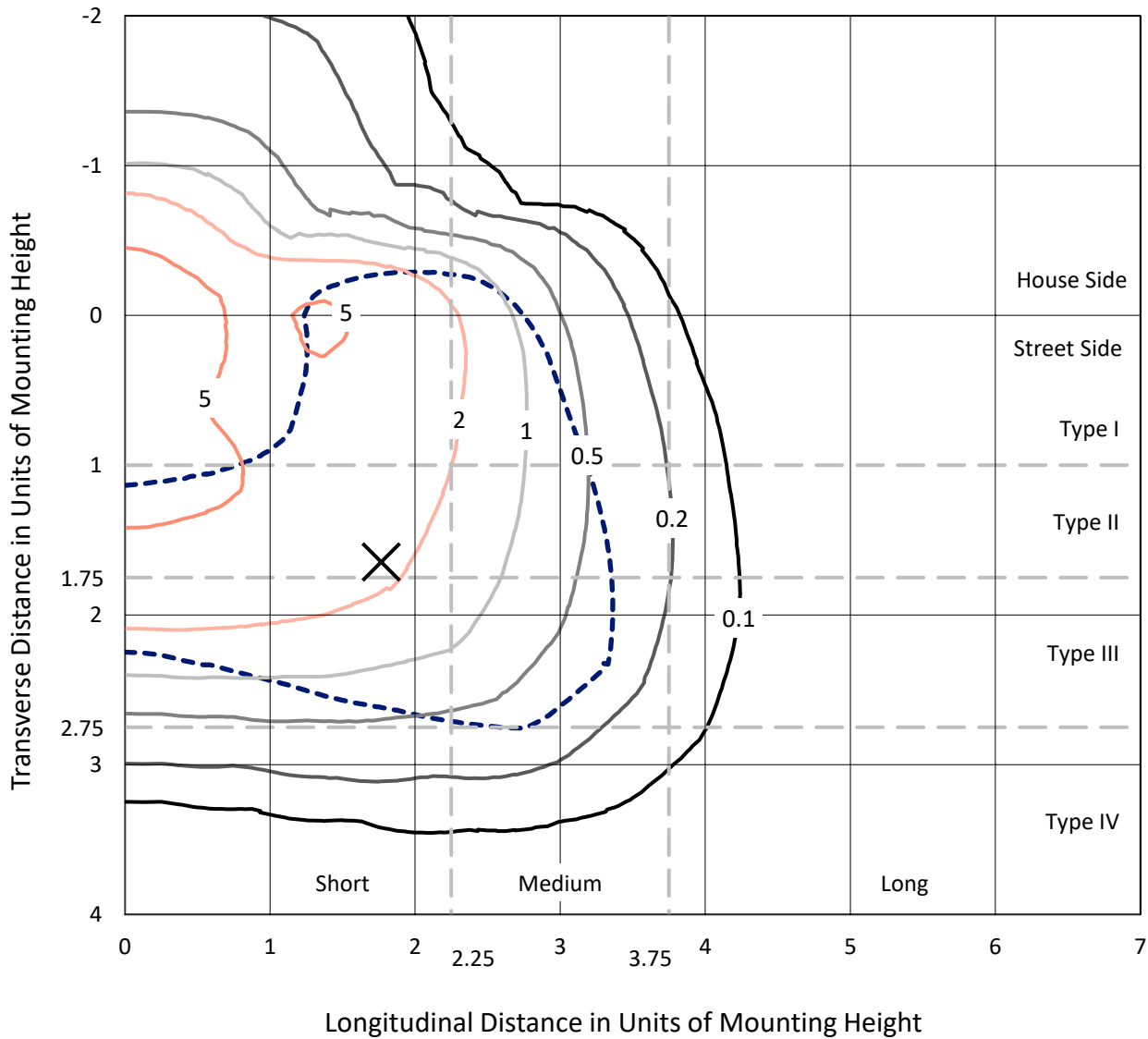
Input Watts (W): 46.4
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P631742
 CATALOG NUMBER: GWS-SA2B-730-U-T4W-W

Iso-Footcandle Lines of Horizontal Illumination

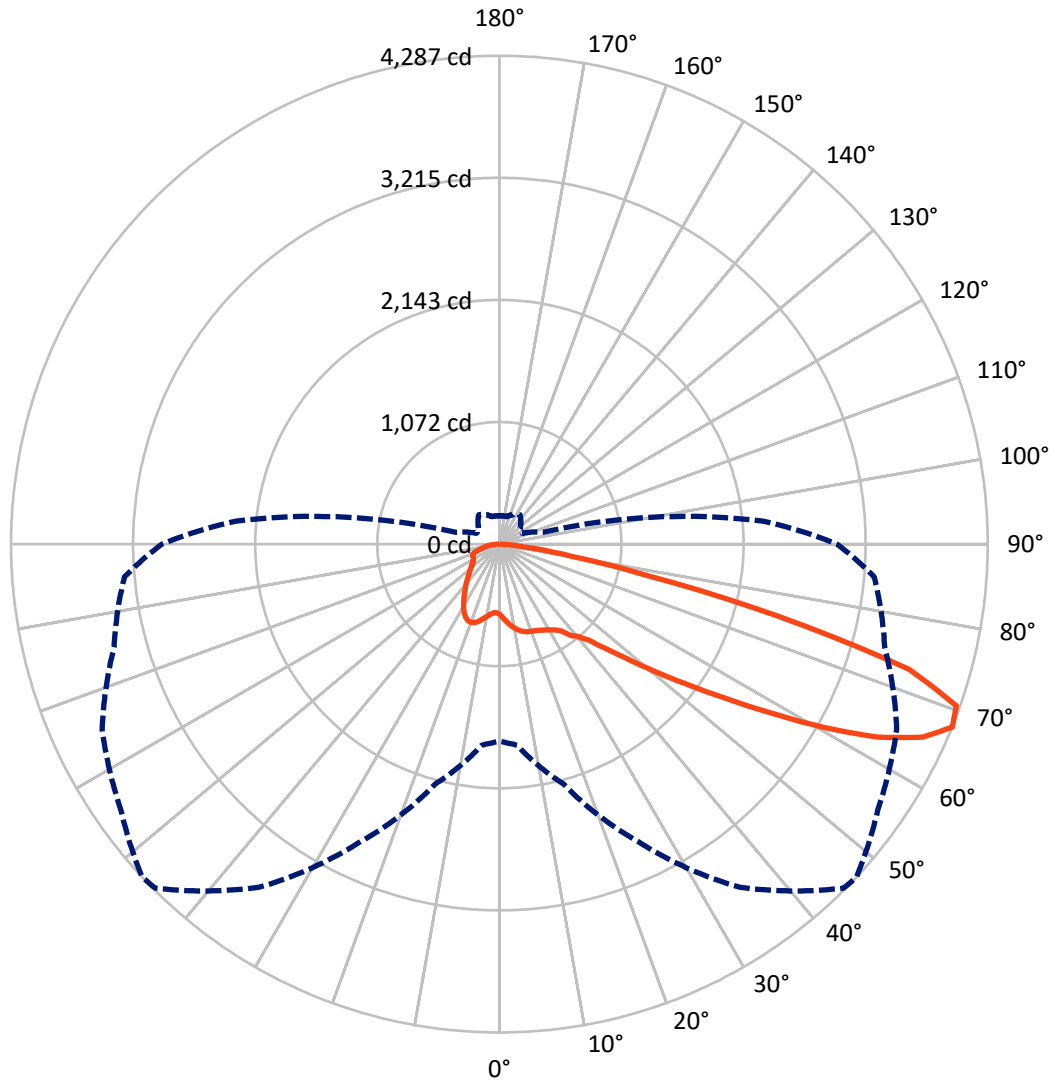
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 7.8 fc
 Type III - Short - N/A

REPORT NUMBER: P631742
CATALOG NUMBER: GWS-SA2B-730-U-T4W-W

Luminous Intensity Polar Plot



— Vertical Plane Through 47-Deg Lateral - - - Horizontal Cone Through 67.5-Deg Vertical

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CATALOG NUMBER: GWS-SA2B-730-U-T4W-W

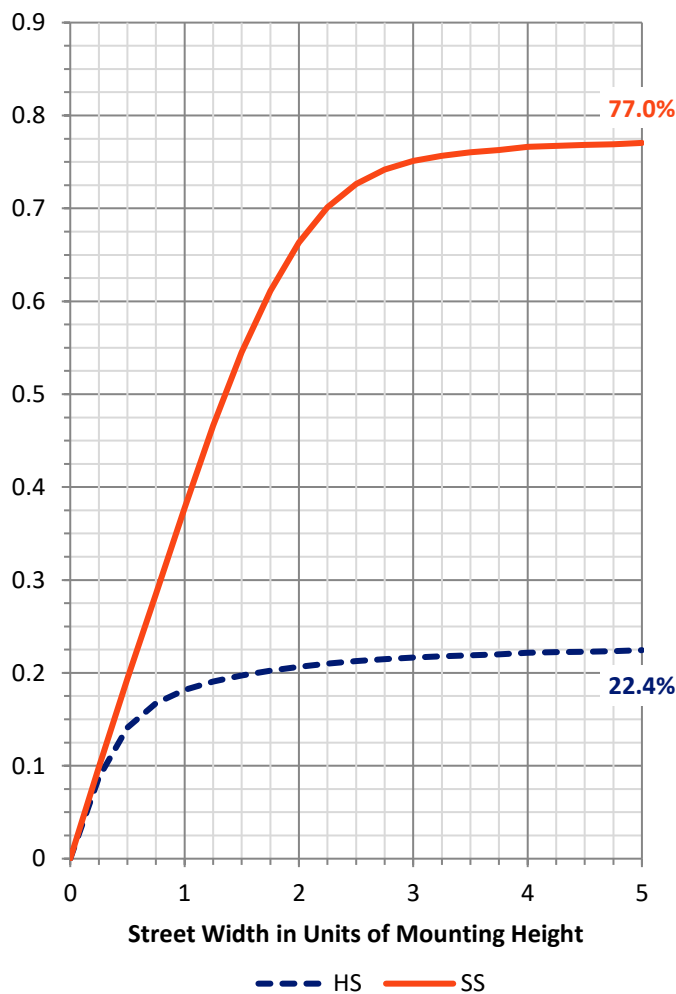
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 1420.0 | 0.0 | 1420.0 |
| | % Fixture | 22.8 | 0.0 | 22.8 |
| Street Side | Lumens | 4810.5 | 0.0 | 4810.5 |
| | % Fixture | 77.2 | 0.0 | 77.2 |
| Total | Lumens | 6230.5 | 0.0 | 6230.5 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 63.1 | 1.0 |
| 10°-20° | 210.3 | 3.4 |
| 20°-30° | 357.5 | 5.7 |
| 30°-40° | 523.6 | 8.4 |
| 40°-50° | 797.8 | 12.8 |
| 50°-60° | 1427.5 | 22.9 |
| 60°-70° | 1904.8 | 30.6 |
| 70°-80° | 861.4 | 13.8 |
| 80°-90° | 84.4 | 1.4 |
| 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° | 6230.5 | 100.0 |
| 0°-180° | 6230.5 | 100.0 |

Coefficient of Utilization



REPORT NUMBER: P631742

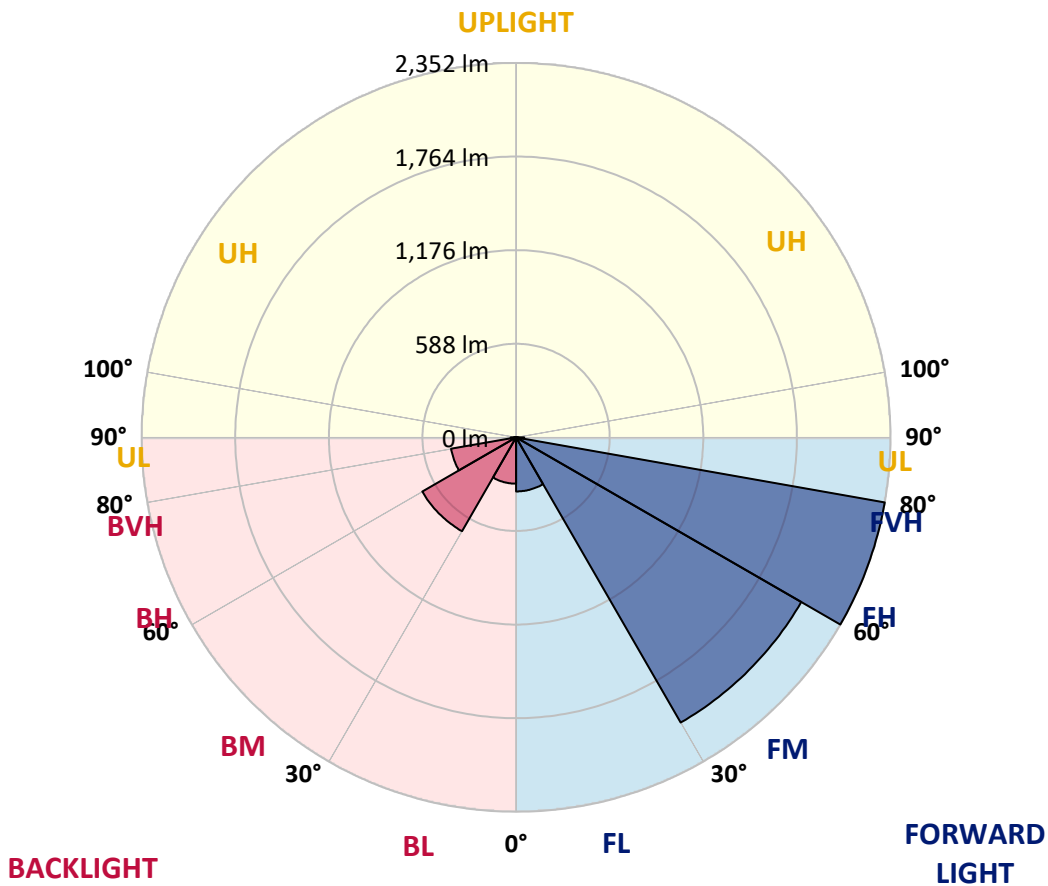
CATALOG NUMBER: GWS-SA2B-730-U-T4W-W

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 339.8 | 5.5 | | | |
| FM (30°-60°) | 2068.6 | 33.2 | | | |
| FH (60°-80°) | 2351.9 | 37.7 | | | G2/5000 |
| FVH (80°-90°) | 50.2 | 0.8 | | | G1/100 |
| BL (0°-30°) | 291.1 | 4.7 | B1/500 | | |
| BM (30°-60°) | 680.4 | 10.9 | B1/1000 | | |
| BH (60°-80°) | 414.3 | 6.6 | B1/500 | | G1/500 |
| BVH (80°-90°) | 34.2 | 0.5 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G2

Type III Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 47° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 617.6 | 617.6 | 617.6 | 617.6 | 617.6 | 617.6 | 617.6 | 617.6 | 617.6 | 617.6 | 617.6 |
| 2.5° | 658.6 | 660.9 | 660.4 | 656.8 | 654.6 | 650.5 | 651.0 | 644.7 | 635.2 | 628.9 | 621.7 |
| 5° | 716.8 | 720.4 | 715.8 | 710.0 | 701.0 | 687.9 | 686.6 | 672.2 | 654.1 | 641.5 | 628.5 |
| 7.5° | 767.2 | 769.5 | 764.1 | 754.1 | 741.1 | 723.5 | 720.4 | 703.2 | 680.7 | 660.9 | 642.0 |
| 10° | 806.4 | 809.1 | 801.9 | 788.8 | 771.7 | 754.1 | 751.9 | 734.3 | 710.4 | 687.0 | 663.1 |
| 12.5° | 839.7 | 840.6 | 833.0 | 815.4 | 796.9 | 778.9 | 776.7 | 760.4 | 738.4 | 714.5 | 688.4 |
| 15° | 859.1 | 859.6 | 850.1 | 830.7 | 813.2 | 797.4 | 796.0 | 782.1 | 761.8 | 739.3 | 711.3 |
| 17.5° | 857.8 | 858.7 | 851.9 | 834.8 | 819.5 | 810.0 | 808.7 | 799.6 | 783.9 | 763.6 | 735.7 |
| 20° | 841.1 | 842.0 | 837.5 | 826.2 | 818.1 | 815.4 | 815.9 | 813.2 | 803.7 | 787.0 | 758.6 |
| 22.5° | 828.0 | 829.4 | 825.3 | 817.2 | 816.3 | 822.6 | 824.0 | 825.3 | 820.8 | 806.0 | 778.5 |
| 25° | 834.3 | 836.6 | 830.3 | 819.0 | 820.8 | 834.8 | 837.5 | 842.0 | 838.4 | 825.8 | 801.9 |
| 27.5° | 878.0 | 879.4 | 863.2 | 840.2 | 834.8 | 849.6 | 853.7 | 860.9 | 858.2 | 846.5 | 828.0 |
| 30° | 979.4 | 978.5 | 943.8 | 887.5 | 865.0 | 870.8 | 874.0 | 884.3 | 885.2 | 877.6 | 860.0 |
| 32.5° | 1122.2 | 1117.7 | 1064.1 | 974.4 | 909.1 | 894.7 | 898.3 | 912.3 | 922.6 | 914.5 | 890.6 |
| 35° | 1273.1 | 1269.1 | 1210.1 | 1105.1 | 990.7 | 940.7 | 936.6 | 947.4 | 963.2 | 940.7 | 906.4 |
| 37.5° | 1416.8 | 1410.5 | 1350.2 | 1220.4 | 1091.1 | 1021.3 | 1015.4 | 1004.6 | 995.2 | 951.9 | 925.8 |
| 40° | 1576.3 | 1569.1 | 1516.4 | 1369.5 | 1201.9 | 1083.0 | 1068.1 | 1025.3 | 1016.8 | 989.3 | 976.2 |
| 42.5° | 1746.6 | 1746.6 | 1702.9 | 1558.3 | 1335.7 | 1171.3 | 1151.9 | 1087.5 | 1096.5 | 1078.5 | 1063.2 |
| 45° | 1916.9 | 1921.8 | 1887.2 | 1748.4 | 1514.6 | 1338.0 | 1306.9 | 1215.5 | 1237.1 | 1229.0 | 1221.3 |
| 47.5° | 2062.0 | 2071.4 | 2064.7 | 1942.6 | 1733.5 | 1540.7 | 1493.4 | 1398.4 | 1444.8 | 1464.1 | 1485.8 |
| 50° | 2218.3 | 2228.6 | 2221.9 | 2173.7 | 1989.9 | 1786.2 | 1743.9 | 1645.7 | 1725.4 | 1783.5 | 1854.3 |
| 52.5° | 2450.3 | 2465.2 | 2408.8 | 2390.4 | 2301.2 | 2065.1 | 2027.3 | 1915.5 | 2060.2 | 2156.6 | 2314.2 |
| 55° | 2646.3 | 2645.8 | 2626.0 | 2668.3 | 2635.4 | 2406.1 | 2364.2 | 2262.9 | 2447.6 | 2549.8 | 2780.5 |
| 57.5° | 2737.3 | 2748.1 | 2816.1 | 2935.9 | 3001.7 | 2822.9 | 2782.8 | 2679.1 | 2863.4 | 2916.6 | 3165.7 |
| 60° | 2784.1 | 2797.6 | 2929.2 | 3166.1 | 3343.2 | 3277.9 | 3262.1 | 3130.1 | 3233.7 | 3227.4 | 3490.5 |
| 62.5° | 2718.3 | 2745.4 | 2956.7 | 3271.6 | 3586.9 | 3735.1 | 3730.2 | 3530.6 | 3548.6 | 3486.9 | 3691.9 |
| 65° | 2416.5 | 2445.8 | 2777.4 | 3218.8 | 3726.1 | 4082.9 | 4084.3 | 3893.2 | 3790.5 | 3613.0 | 3658.1 |
| 67.5° | 1728.1 | 1770.0 | 2180.0 | 2880.1 | 3677.0 | 4270.8 | 4286.5 | 4057.7 | 3847.3 | 3501.3 | 3303.1 |
| 70° | 942.0 | 972.6 | 1293.8 | 2093.5 | 3234.6 | 4225.7 | 4255.0 | 3978.4 | 3596.8 | 3028.7 | 2542.6 |
| 72.5° | 428.0 | 437.9 | 601.9 | 1148.8 | 2209.7 | 3637.4 | 3759.9 | 3550.4 | 2953.9 | 2237.2 | 1616.9 |
| 75° | 196.0 | 200.5 | 262.2 | 549.6 | 1154.6 | 2434.1 | 2520.1 | 2644.5 | 2055.6 | 1412.8 | 842.9 |
| 77.5° | 123.0 | 124.3 | 149.1 | 251.4 | 575.7 | 1215.0 | 1305.6 | 1574.5 | 1203.7 | 699.2 | 352.3 |
| 80° | 72.5 | 73.9 | 92.8 | 136.1 | 270.3 | 555.9 | 642.0 | 622.6 | 565.8 | 301.8 | 160.4 |
| 82.5° | 36.5 | 37.8 | 53.6 | 77.5 | 147.3 | 221.2 | 260.4 | 261.7 | 210.8 | 163.5 | 90.6 |
| 85° | 13.1 | 13.5 | 17.6 | 30.6 | 62.6 | 73.0 | 81.5 | 99.6 | 103.2 | 95.1 | 43.7 |
| 87.5° | 0.0 | 0.0 | 0.5 | 0.9 | 1.8 | 7.2 | 7.7 | 14.4 | 30.2 | 33.8 | 17.6 |
| 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: P631742
 CATALOG NUMBER: GWS-SA2B-730-U-T4W-W

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 617.6 | 617.6 | 617.6 | 617.6 | 617.6 | 617.6 | 617.6 | 617.6 | 617.6 | 617.6 | 617.6 |
| 2.5° | 619.4 | 612.7 | 610.4 | 608.2 | 604.6 | 603.2 | 600.5 | 597.8 | 597.8 | 595.1 | 593.8 |
| 5° | 622.6 | 613.6 | 607.7 | 605.0 | 602.8 | 604.1 | 604.1 | 605.0 | 608.2 | 606.4 | 607.3 |
| 7.5° | 633.9 | 623.5 | 615.4 | 613.1 | 613.1 | 618.5 | 622.1 | 626.6 | 632.5 | 633.4 | 633.4 |
| 10° | 653.7 | 641.5 | 633.0 | 631.6 | 633.9 | 641.5 | 646.9 | 652.3 | 659.5 | 660.0 | 660.9 |
| 12.5° | 675.3 | 663.1 | 654.6 | 656.4 | 658.6 | 668.5 | 674.4 | 678.9 | 686.1 | 686.1 | 685.7 |
| 15° | 697.8 | 684.3 | 677.1 | 680.7 | 687.5 | 698.7 | 699.6 | 700.1 | 703.7 | 702.8 | 702.3 |
| 17.5° | 721.3 | 706.8 | 701.4 | 706.8 | 714.0 | 719.5 | 714.9 | 708.6 | 707.3 | 705.5 | 704.6 |
| 20° | 744.2 | 729.4 | 727.1 | 731.2 | 733.4 | 728.9 | 714.9 | 703.2 | 697.8 | 695.1 | 694.2 |
| 22.5° | 764.1 | 751.4 | 750.1 | 750.1 | 738.8 | 723.1 | 702.3 | 686.6 | 679.4 | 675.8 | 674.9 |
| 25° | 787.5 | 775.8 | 773.5 | 761.4 | 732.5 | 703.7 | 675.8 | 661.3 | 655.5 | 653.7 | 654.1 |
| 27.5° | 815.0 | 806.9 | 799.6 | 765.0 | 714.5 | 669.4 | 637.9 | 631.6 | 629.4 | 631.6 | 633.0 |
| 30° | 848.7 | 840.6 | 824.4 | 760.4 | 685.7 | 624.8 | 594.7 | 594.2 | 601.0 | 606.8 | 607.7 |
| 32.5° | 876.2 | 872.6 | 846.0 | 746.0 | 645.1 | 575.7 | 550.1 | 551.9 | 564.0 | 572.1 | 573.5 |
| 35° | 897.9 | 903.7 | 864.1 | 722.2 | 596.9 | 529.3 | 509.1 | 510.0 | 516.7 | 528.0 | 528.4 |
| 37.5° | 928.5 | 948.3 | 880.3 | 685.7 | 541.5 | 489.2 | 470.8 | 464.0 | 463.1 | 466.3 | 467.2 |
| 40° | 990.2 | 1019.9 | 892.0 | 632.5 | 487.9 | 453.2 | 432.5 | 419.4 | 408.2 | 399.6 | 396.9 |
| 42.5° | 1083.5 | 1117.7 | 898.8 | 568.1 | 440.1 | 417.6 | 394.2 | 377.5 | 357.7 | 339.7 | 333.4 |
| 45° | 1254.7 | 1265.9 | 898.8 | 499.6 | 397.8 | 384.3 | 360.9 | 341.0 | 315.8 | 294.6 | 290.1 |
| 47.5° | 1528.6 | 1492.5 | 899.7 | 433.4 | 360.4 | 355.0 | 334.7 | 312.2 | 284.3 | 266.7 | 264.0 |
| 50° | 1941.2 | 1814.6 | 918.1 | 378.4 | 329.3 | 330.2 | 315.4 | 290.6 | 265.3 | 252.3 | 250.0 |
| 52.5° | 2408.8 | 2211.5 | 967.7 | 337.9 | 303.2 | 309.9 | 301.8 | 278.0 | 255.4 | 244.2 | 241.9 |
| 55° | 2848.5 | 2576.4 | 1010.0 | 309.0 | 281.1 | 292.8 | 292.4 | 270.3 | 250.0 | 238.8 | 237.4 |
| 57.5° | 3222.4 | 2826.5 | 1003.7 | 285.6 | 262.2 | 277.1 | 283.8 | 265.3 | 246.4 | 237.0 | 235.6 |
| 60° | 3454.9 | 2958.9 | 914.1 | 264.0 | 247.8 | 265.8 | 278.9 | 264.0 | 248.2 | 246.0 | 246.4 |
| 62.5° | 3555.8 | 2934.6 | 742.0 | 247.8 | 238.3 | 260.4 | 284.3 | 273.5 | 264.9 | 270.3 | 273.5 |
| 65° | 3399.0 | 2725.5 | 546.0 | 235.6 | 229.3 | 261.7 | 296.9 | 288.3 | 264.9 | 268.5 | 269.9 |
| 67.5° | 2963.9 | 2320.1 | 394.6 | 223.4 | 218.0 | 265.8 | 314.9 | 286.1 | 249.6 | 249.6 | 246.9 |
| 70° | 2135.8 | 1668.7 | 286.5 | 211.3 | 206.8 | 259.9 | 315.8 | 270.8 | 232.0 | 230.7 | 223.9 |
| 72.5° | 1285.3 | 984.3 | 223.4 | 197.8 | 189.7 | 230.7 | 296.0 | 252.7 | 214.9 | 203.6 | 195.5 |
| 75° | 667.6 | 493.3 | 187.4 | 182.9 | 162.6 | 195.5 | 270.8 | 224.8 | 183.8 | 173.9 | 169.4 |
| 77.5° | 286.1 | 230.7 | 160.8 | 163.1 | 135.2 | 164.4 | 218.5 | 194.6 | 163.1 | 150.5 | 146.4 |
| 80° | 141.0 | 131.1 | 127.0 | 130.6 | 108.1 | 127.0 | 188.3 | 170.3 | 138.3 | 123.9 | 118.0 |
| 82.5° | 80.6 | 76.6 | 91.5 | 92.8 | 77.0 | 106.3 | 159.0 | 144.2 | 114.4 | 98.7 | 89.2 |
| 85° | 37.4 | 40.1 | 55.4 | 55.9 | 47.8 | 73.0 | 104.1 | 81.1 | 60.8 | 50.5 | 48.2 |
| 87.5° | 14.9 | 17.6 | 24.3 | 23.9 | 14.0 | 13.5 | 9.0 | 5.0 | 4.1 | 3.6 | 3.2 |
| 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: SP1-1908-441-2-R4

Test Date: 10/03/2019

Luminaire Tested: SA1C-730-U-5WQ

Data in this report applies to families of products SA1C-730-U-5WQ .

Test Information

Test Method: LM-79-2008
 Report Number: SP1-1908-441-2-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-730-U-5WQ**
 Description: McGRAW EDISON ROADWAY AND AREA LUMINAIRE

THIS IS A REVISION OF SP1-1908-441-2-R3. TO UPDATE THE CATALOG INFORMATION.TESTED IN SITU. (1) 70 CRI, 3000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

Spectral Parameters

CCT (K): 2993
 CIE u': 0.2508
 CIE v': 0.5215
 Duv: 0.0000
 CIE x: 0.4374
 CIE y: 0.4043
 CIE z: 0.1583
 Peak Wavelength (nm): 593
 Dominant Wavelength (nm): 582
 Purity: 53

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 71.8 | | |
| R1: | 67.5 | R9: | -38.3 |
| R2: | 82.9 | R10: | 62.5 |
| R3: | 94.7 | R11: | 63.7 |
| R4: | 67.7 | R12: | 57.8 |
| R5: | 67.9 | R13: | 70.4 |
| R6: | 77.6 | R14: | 97.3 |
| R7: | 76.0 | | |
| R8: | 40.5 | | |

Rf: 75.7
 Rg: 93.9



Test Conditions

Stabilization Time: 53M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.0./44%
 Sphere Temperature (°C): 25.7

REPORT NUMBER: SP1-1908-441-2-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 3000K 4-step quadrangle

REPORT NUMBER: SP1-1908-441-2-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 | 2397 | NR | 490 | 24908 | NR | 620 | 118784 | NR | 750 | 5037 | NR | 880 | 2677 | NR |
| 365 | 2084 | NR | 495 | 30998 | NR | 625 | 108951 | NR | 755 | 4413 | NR | 885 | 2940 | NR |
| 370 | 2143 | NR | 500 | 37103 | NR | 630 | 99573 | NR | 760 | 4189 | NR | 890 | 3116 | NR |
| 375 | 2413 | NR | 505 | 42987 | NR | 635 | 90444 | NR | 765 | 3677 | NR | 895 | 3345 | NR |
| 380 | 2172 | NR | 510 | 48702 | NR | 640 | 80749 | NR | 770 | 3366 | NR | 900 | 2312 | NR |
| 385 | 1997 | NR | 515 | 53741 | NR | 645 | 71664 | NR | 775 | 3211 | NR | 905 | 2829 | NR |
| 390 | 1830 | NR | 520 | 57283 | NR | 650 | 63936 | NR | 780 | 2682 | NR | 910 | 2783 | NR |
| 395 | 1861 | NR | 525 | 61876 | NR | 655 | 56611 | NR | 785 | 2804 | NR | 915 | 2662 | NR |
| 400 | 1717 | NR | 530 | 65398 | NR | 660 | 49763 | NR | 790 | 2581 | NR | 920 | 3047 | NR |
| 405 | 1761 | NR | 535 | 69597 | NR | 665 | 42891 | NR | 795 | 2711 | NR | 925 | 2256 | NR |
| 410 | 2680 | NR | 540 | 74214 | NR | 670 | 36939 | NR | 800 | 2609 | NR | 930 | 2976 | NR |
| 415 | 4374 | NR | 545 | 79911 | NR | 675 | 31946 | NR | 805 | 2581 | NR | 935 | 3503 | NR |
| 420 | 8071 | NR | 550 | 86153 | NR | 680 | 27385 | NR | 810 | 2404 | NR | 940 | 4226 | NR |
| 425 | 15169 | NR | 555 | 93952 | NR | 685 | 23504 | NR | 815 | 2556 | NR | 945 | 2930 | NR |
| 430 | 26038 | NR | 560 | 102904 | NR | 690 | 20210 | NR | 820 | 2742 | NR | 950 | 2115 | NR |
| 435 | 41316 | NR | 565 | 112009 | NR | 695 | 17459 | NR | 825 | 2014 | NR | 955 | 2634 | NR |
| 440 | 59674 | NR | 570 | 121662 | NR | 700 | 15207 | NR | 830 | 2488 | NR | 960 | 4200 | NR |
| 445 | 72751 | NR | 575 | 130476 | NR | 705 | 13322 | NR | 835 | 2625 | NR | 965 | 1982 | NR |
| 450 | 65091 | NR | 580 | 137926 | NR | 710 | 11676 | NR | 840 | 2754 | NR | 970 | 3613 | NR |
| 455 | 44894 | NR | 585 | 143406 | NR | 715 | 10626 | NR | 845 | 2708 | NR | 975 | 4034 | NR |
| 460 | 32712 | NR | 590 | 147039 | NR | 720 | 9416 | NR | 850 | 2608 | NR | 980 | 3922 | NR |
| 465 | 25296 | NR | 595 | 147365 | NR | 725 | 8333 | NR | 855 | 2605 | NR | 985 | 1909 | NR |
| 470 | 19318 | NR | 600 | 145800 | NR | 730 | 7134 | NR | 860 | 1765 | NR | 990 | 3617 | NR |
| 475 | 17265 | NR | 605 | 141363 | NR | 735 | 6437 | NR | 865 | 2581 | NR | 995 | 4767 | NR |
| 480 | 18260 | NR | 610 | 134199 | NR | 740 | 5834 | NR | 870 | 3016 | NR | 1000 | 2528 | NR |
| 485 | 20845 | NR | 615 | 127683 | NR | 745 | 5500 | NR | 875 | 3952 | NR | | | |

REPORT NUMBER: SP1-1908-441-2-R4

Scotopic Flux vs. Wavelength



Scotopic Lumens: 8494.8

S/P: 1.23

| 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 | 2397 | NR | 490 | 24908 | NR | 620 | 118784 | NR | 750 | 5037 | NR | 880 | 2677 | NR |
| 365 | 2084 | NR | 495 | 30998 | NR | 625 | 108951 | NR | 755 | 4413 | NR | 885 | 2940 | NR |
| 370 | 2143 | NR | 500 | 37103 | NR | 630 | 99573 | NR | 760 | 4189 | NR | 890 | 3116 | NR |
| 375 | 2413 | NR | 505 | 42987 | NR | 635 | 90444 | NR | 765 | 3677 | NR | 895 | 3345 | NR |
| 380 | 2172 | NR | 510 | 48702 | NR | 640 | 80749 | NR | 770 | 3366 | NR | 900 | 2312 | NR |
| 385 | 1997 | NR | 515 | 53741 | NR | 645 | 71664 | NR | 775 | 3211 | NR | 905 | 2829 | NR |
| 390 | 1830 | NR | 520 | 57283 | NR | 650 | 63936 | NR | 780 | 2682 | NR | 910 | 2783 | NR |
| 395 | 1861 | NR | 525 | 61876 | NR | 655 | 56611 | NR | 785 | 2804 | NR | 915 | 2662 | NR |
| 400 | 1717 | NR | 530 | 65398 | NR | 660 | 49763 | NR | 790 | 2581 | NR | 920 | 3047 | NR |
| 405 | 1761 | NR | 535 | 69597 | NR | 665 | 42891 | NR | 795 | 2711 | NR | 925 | 2256 | NR |
| 410 | 2680 | NR | 540 | 74214 | NR | 670 | 36939 | NR | 800 | 2609 | NR | 930 | 2976 | NR |
| 415 | 4374 | NR | 545 | 79911 | NR | 675 | 31946 | NR | 805 | 2581 | NR | 935 | 3503 | NR |
| 420 | 8071 | NR | 550 | 86153 | NR | 680 | 27385 | NR | 810 | 2404 | NR | 940 | 4226 | NR |
| 425 | 15169 | NR | 555 | 93952 | NR | 685 | 23504 | NR | 815 | 2556 | NR | 945 | 2930 | NR |
| 430 | 26038 | NR | 560 | 102904 | NR | 690 | 20210 | NR | 820 | 2742 | NR | 950 | 2115 | NR |
| 435 | 41316 | NR | 565 | 112009 | NR | 695 | 17459 | NR | 825 | 2014 | NR | 955 | 2634 | NR |
| 440 | 59674 | NR | 570 | 121662 | NR | 700 | 15207 | NR | 830 | 2488 | NR | 960 | 4200 | NR |
| 445 | 72751 | NR | 575 | 130476 | NR | 705 | 13322 | NR | 835 | 2625 | NR | 965 | 1982 | NR |
| 450 | 65091 | NR | 580 | 137926 | NR | 710 | 11676 | NR | 840 | 2754 | NR | 970 | 3613 | NR |
| 455 | 44894 | NR | 585 | 143406 | NR | 715 | 10626 | NR | 845 | 2708 | NR | 975 | 4034 | NR |
| 460 | 32712 | NR | 590 | 147039 | NR | 720 | 9416 | NR | 850 | 2608 | NR | 980 | 3922 | NR |
| 465 | 25296 | NR | 595 | 147365 | NR | 725 | 8333 | NR | 855 | 2605 | NR | 985 | 1909 | NR |
| 470 | 19318 | NR | 600 | 145800 | NR | 730 | 7134 | NR | 860 | 1765 | NR | 990 | 3617 | NR |
| 475 | 17265 | NR | 605 | 141363 | NR | 735 | 6437 | NR | 865 | 2581 | NR | 995 | 4767 | NR |
| 480 | 18260 | NR | 610 | 134199 | NR | 740 | 5834 | NR | 870 | 3016 | NR | 1000 | 2528 | NR |
| 485 | 20845 | NR | 615 | 127683 | NR | 745 | 5500 | NR | 875 | 3952 | NR | | | |

REPORT NUMBER: SP1-1908-441-2-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 3101.5 M/P: 0.45

| 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 | 2397 | NR | 490 | 24908 | NR | 620 | 118784 | NR | 750 | 5037 | NR | 880 | 2677 | NR |
| 365 | 2084 | NR | 495 | 30998 | NR | 625 | 108951 | NR | 755 | 4413 | NR | 885 | 2940 | NR |
| 370 | 2143 | NR | 500 | 37103 | NR | 630 | 99573 | NR | 760 | 4189 | NR | 890 | 3116 | NR |
| 375 | 2413 | NR | 505 | 42987 | NR | 635 | 90444 | NR | 765 | 3677 | NR | 895 | 3345 | NR |
| 380 | 2172 | NR | 510 | 48702 | NR | 640 | 80749 | NR | 770 | 3366 | NR | 900 | 2312 | NR |
| 385 | 1997 | NR | 515 | 53741 | NR | 645 | 71664 | NR | 775 | 3211 | NR | 905 | 2829 | NR |
| 390 | 1830 | NR | 520 | 57283 | NR | 650 | 63936 | NR | 780 | 2682 | NR | 910 | 2783 | NR |
| 395 | 1861 | NR | 525 | 61876 | NR | 655 | 56611 | NR | 785 | 2804 | NR | 915 | 2662 | NR |
| 400 | 1717 | NR | 530 | 65398 | NR | 660 | 49763 | NR | 790 | 2581 | NR | 920 | 3047 | NR |
| 405 | 1761 | NR | 535 | 69597 | NR | 665 | 42891 | NR | 795 | 2711 | NR | 925 | 2256 | NR |
| 410 | 2680 | NR | 540 | 74214 | NR | 670 | 36939 | NR | 800 | 2609 | NR | 930 | 2976 | NR |
| 415 | 4374 | NR | 545 | 79911 | NR | 675 | 31946 | NR | 805 | 2581 | NR | 935 | 3503 | NR |
| 420 | 8071 | NR | 550 | 86153 | NR | 680 | 27385 | NR | 810 | 2404 | NR | 940 | 4226 | NR |
| 425 | 15169 | NR | 555 | 93952 | NR | 685 | 23504 | NR | 815 | 2556 | NR | 945 | 2930 | NR |
| 430 | 26038 | NR | 560 | 102904 | NR | 690 | 20210 | NR | 820 | 2742 | NR | 950 | 2115 | NR |
| 435 | 41316 | NR | 565 | 112009 | NR | 695 | 17459 | NR | 825 | 2014 | NR | 955 | 2634 | NR |
| 440 | 59674 | NR | 570 | 121662 | NR | 700 | 15207 | NR | 830 | 2488 | NR | 960 | 4200 | NR |
| 445 | 72751 | NR | 575 | 130476 | NR | 705 | 13322 | NR | 835 | 2625 | NR | 965 | 1982 | NR |
| 450 | 65091 | NR | 580 | 137926 | NR | 710 | 11676 | NR | 840 | 2754 | NR | 970 | 3613 | NR |
| 455 | 44894 | NR | 585 | 143406 | NR | 715 | 10626 | NR | 845 | 2708 | NR | 975 | 4034 | NR |
| 460 | 32712 | NR | 590 | 147039 | NR | 720 | 9416 | NR | 850 | 2608 | NR | 980 | 3922 | NR |
| 465 | 25296 | NR | 595 | 147365 | NR | 725 | 8333 | NR | 855 | 2605 | NR | 985 | 1909 | NR |
| 470 | 19318 | NR | 600 | 145800 | NR | 730 | 7134 | NR | 860 | 1765 | NR | 990 | 3617 | NR |
| 475 | 17265 | NR | 605 | 141363 | NR | 735 | 6437 | NR | 865 | 2581 | NR | 995 | 4767 | NR |
| 480 | 18260 | NR | 610 | 134199 | NR | 740 | 5834 | NR | 870 | 3016 | NR | 1000 | 2528 | NR |
| 485 | 20845 | NR | 615 | 127683 | NR | 745 | 5500 | NR | 875 | 3952 | NR | | | |

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Summary

$R_f = 75.7$
 $R_g = 93.9$
 CIE $R_a = 71.8$
 $R_9 = -38.3$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 67 | CES51 = 87 | CES76 = 63 |
| CES02 = 63 | CES27 = 88 | CES52 = 86 | CES77 = 80 |
| CES03 = 31 | CES28 = 87 | CES53 = 78 | CES78 = 67 |
| CES04 = 71 | CES29 = 66 | CES54 = 84 | CES79 = 87 |
| CES05 = 49 | CES30 = 73 | CES55 = 84 | CES80 = 86 |
| CES06 = 51 | CES31 = 70 | CES56 = 75 | CES81 = 71 |
| CES07 = 41 | CES32 = 65 | CES57 = 74 | CES82 = 94 |
| CES08 = 40 | CES33 = 73 | CES58 = 76 | CES83 = 90 |
| CES09 = 29 | CES34 = 79 | CES59 = 85 | CES84 = 89 |
| CES10 = 76 | CES35 = 89 | CES60 = 93 | CES85 = 77 |
| CES11 = 59 | CES36 = 97 | CES61 = 84 | CES86 = 61 |
| CES12 = 65 | CES37 = 87 | CES62 = 91 | CES87 = 78 |
| CES13 = 43 | CES38 = 81 | CES63 = 77 | CES88 = 77 |
| CES14 = 74 | CES39 = 95 | CES64 = 72 | CES89 = 67 |
| CES15 = 71 | CES40 = 92 | CES65 = 68 | CES90 = 76 |
| CES16 = 47 | CES41 = 88 | CES66 = 69 | CES91 = 89 |
| CES17 = 50 | CES42 = 89 | CES67 = 67 | CES92 = 58 |
| CES18 = 56 | CES43 = 79 | CES68 = 72 | CES93 = 74 |
| CES19 = 73 | CES44 = 99 | CES69 = 81 | CES94 = 49 |
| CES20 = 66 | CES45 = 85 | CES70 = 66 | CES95 = 68 |
| CES21 = 87 | CES46 = 80 | CES71 = 67 | CES96 = 76 |
| CES22 = 79 | CES47 = 82 | CES72 = 88 | CES97 = 82 |
| CES23 = 92 | CES48 = 69 | CES73 = 59 | CES98 = 75 |
| CES24 = 91 | CES49 = 80 | CES74 = 95 | CES99 = 62 |
| CES25 = 73 | CES50 = 87 | CES75 = 69 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)