

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: P631234

Luminaire Tested: GWS-SA1F-730-U-T2R-W-HSS

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P631234
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-14)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA1F-730-U-T2R-W-HSS
Description: GALLEON WALL SLIM LUMINAIRE. (1) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II ROADWAY OPTICS WITH HOUSE SIDE SHIELD
Light Source: (16) 3000K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6187.1 lumens
Efficiency: N/A
Efficacy: 92.1 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type II - Short
BUG Rating: B0 - U0 - G1

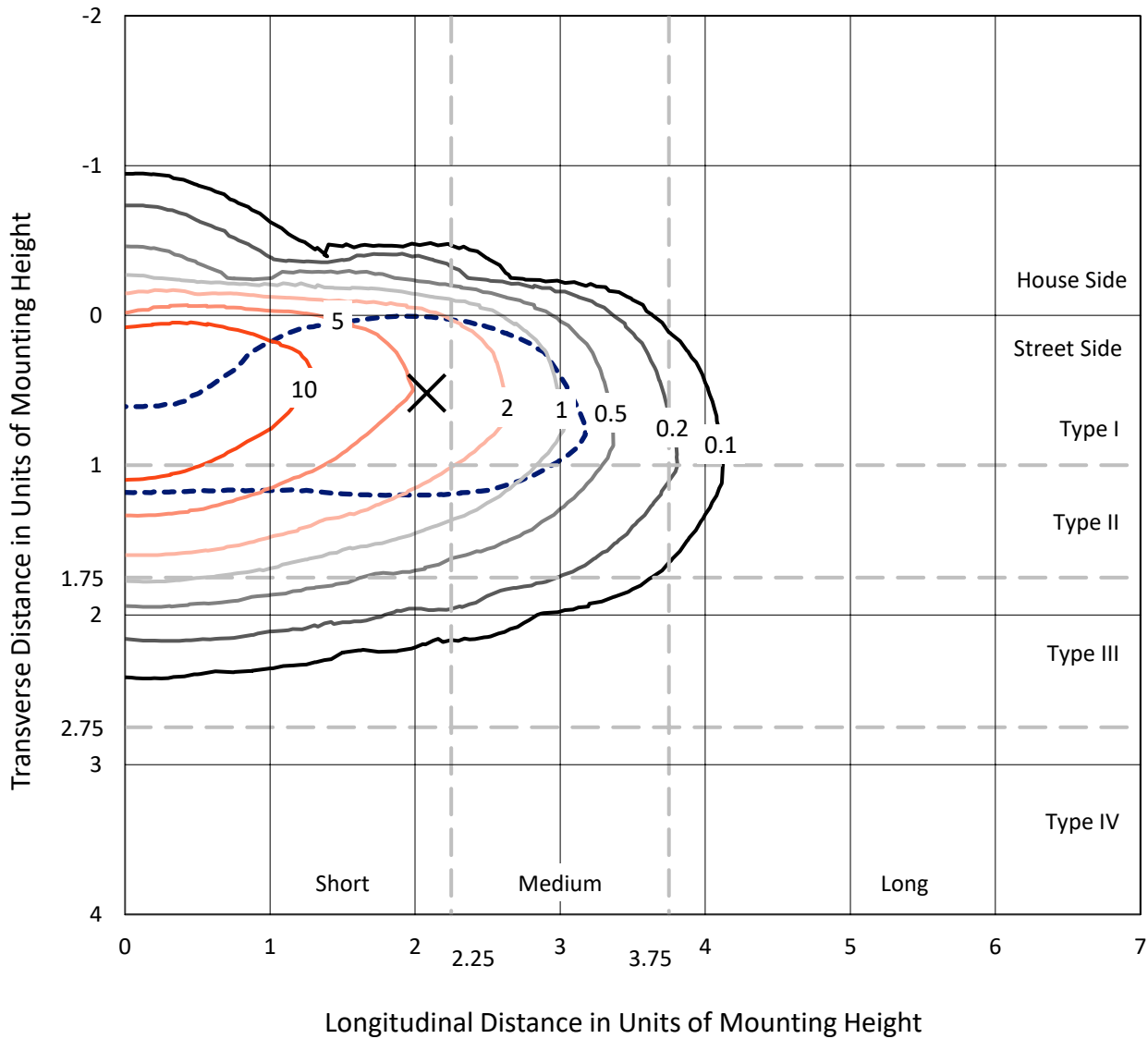
Input Watts (W): 67.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

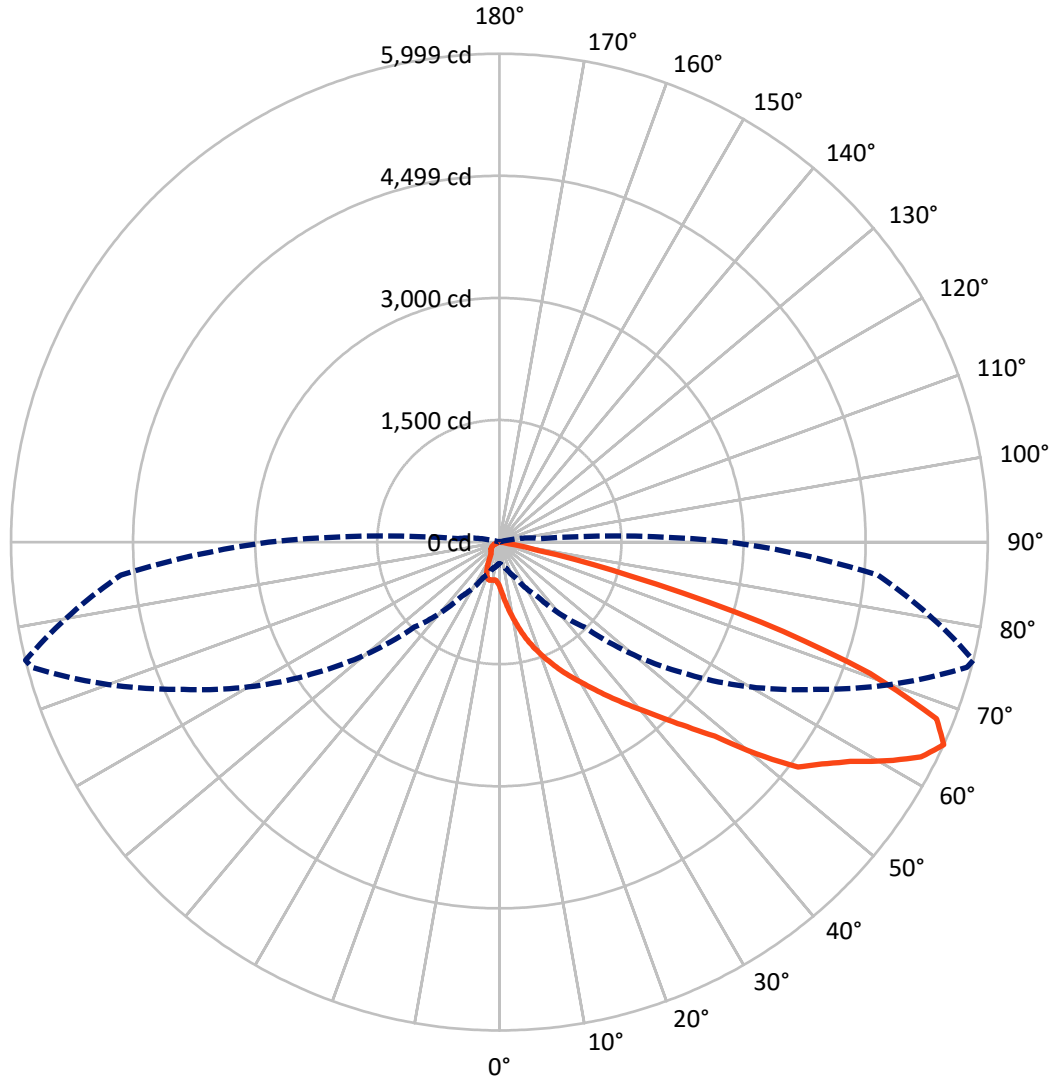
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 18.5 fc
 Type II - Short - N/A

REPORT NUMBER: P631234
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Luminous Intensity Polar Plot



— Vertical Plane Through 76-Deg Lateral - - - Horizontal Cone Through 65-Deg Vertical

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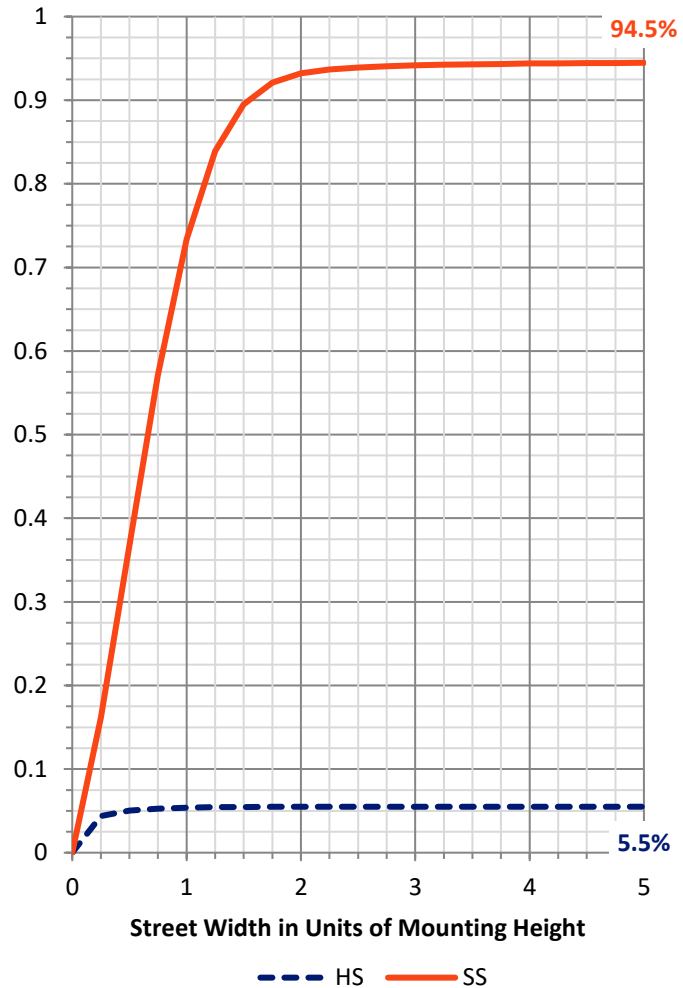
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 342.1 | 0.0 | 342.1 |
| | % Fixture | 5.5 | 0.0 | 5.5 |
| Street Side | Lumens | 5845.1 | 0.0 | 5845.1 |
| | % Fixture | 94.5 | 0.0 | 94.5 |
| Total | Lumens | 6187.1 | 0.0 | 6187.1 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 66.6 | 1.1 |
| 10°-20° | 252.9 | 4.1 |
| 20°-30° | 515.9 | 8.3 |
| 30°-40° | 917.5 | 14.8 |
| 40°-50° | 1356.3 | 21.9 |
| 50°-60° | 1552.9 | 25.1 |
| 60°-70° | 1184.8 | 19.1 |
| 70°-80° | 331.9 | 5.4 |
| 80°-90° | 8.3 | 0.1 |
| 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° | 6187.1 | 100.0 |
| 0°-180° | 6187.1 | 100.0 |

Coefficient of Utilization



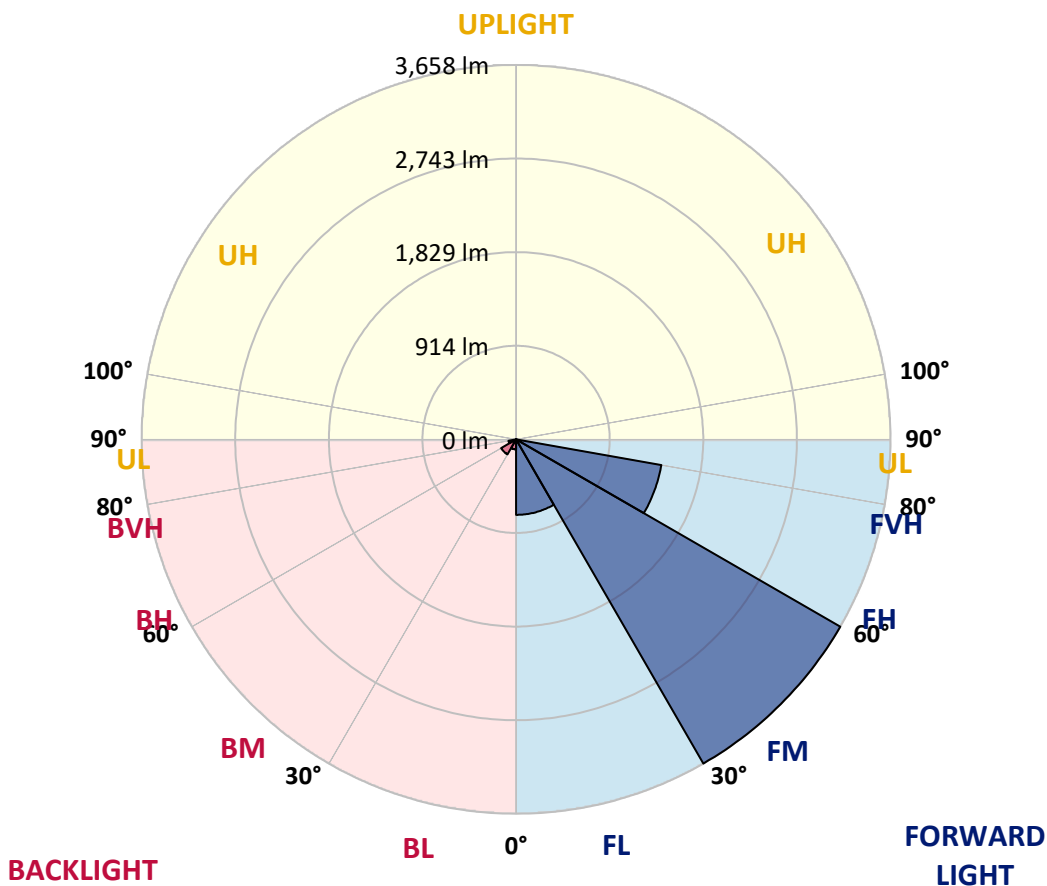
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 737.8 | 11.9 | | | |
| FM (30°-60°) | 3658.0 | 59.1 | | | |
| FH (60°-80°) | 1441.4 | 23.3 | | | G1/1800 |
| FVH (80°-90°) | 7.9 | 0.1 | | | G0/10 |
| BL (0°-30°) | 97.6 | 1.6 | B0/110 | | |
| BM (30°-60°) | 168.8 | 2.7 | B0/220 | | |
| BH (60°-80°) | 75.2 | 1.2 | B0/110 | | G0/110 |
| BVH (80°-90°) | 0.5 | 0.0 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B0-U0-G1
 Type II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 76° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 547.8 | 547.8 | 547.8 | 547.8 | 547.8 | 547.8 | 547.8 | 547.8 | 547.8 | 547.8 | 547.8 |
| 2.5° | 844.2 | 856.9 | 847.0 | 830.5 | 798.6 | 767.8 | 728.2 | 673.7 | 630.3 | 624.8 | 584.1 |
| 5° | 1140.1 | 1139.0 | 1117.6 | 1096.1 | 1062.6 | 1009.8 | 930.0 | 828.8 | 731.5 | 723.2 | 631.9 |
| 7.5° | 1316.1 | 1317.8 | 1305.7 | 1289.2 | 1256.2 | 1201.7 | 1118.7 | 996.6 | 854.1 | 837.6 | 697.4 |
| 10° | 1464.1 | 1463.5 | 1454.7 | 1447.0 | 1417.3 | 1381.0 | 1291.9 | 1157.7 | 986.1 | 960.3 | 770.5 |
| 12.5° | 1575.2 | 1579.0 | 1583.4 | 1591.1 | 1578.5 | 1542.7 | 1458.6 | 1312.3 | 1119.8 | 1091.2 | 854.1 |
| 15° | 1663.2 | 1664.3 | 1680.8 | 1710.5 | 1720.9 | 1702.2 | 1625.8 | 1461.9 | 1251.8 | 1227.0 | 950.4 |
| 17.5° | 1689.6 | 1691.8 | 1719.8 | 1774.3 | 1829.3 | 1839.7 | 1782.0 | 1612.6 | 1381.6 | 1355.2 | 1043.9 |
| 20° | 1745.1 | 1750.1 | 1771.0 | 1818.8 | 1888.1 | 1944.2 | 1921.7 | 1764.9 | 1511.4 | 1476.7 | 1139.6 |
| 22.5° | 1920.0 | 1922.8 | 1915.6 | 1921.7 | 1957.4 | 2022.3 | 2036.1 | 1912.3 | 1644.5 | 1607.6 | 1243.0 |
| 25° | 2220.9 | 2222.0 | 2171.9 | 2124.6 | 2097.7 | 2109.8 | 2140.0 | 2048.2 | 1776.5 | 1740.2 | 1339.2 |
| 27.5° | 2533.3 | 2537.1 | 2477.2 | 2396.9 | 2300.6 | 2245.6 | 2236.8 | 2172.5 | 1909.6 | 1869.4 | 1434.4 |
| 30° | 2827.5 | 2827.5 | 2764.3 | 2666.4 | 2537.7 | 2430.4 | 2367.2 | 2297.9 | 2052.0 | 2008.0 | 1531.7 |
| 32.5° | 3092.1 | 3089.9 | 3009.0 | 2902.9 | 2775.8 | 2658.1 | 2525.0 | 2428.8 | 2210.4 | 2161.5 | 1643.9 |
| 35° | 3310.4 | 3304.9 | 3213.1 | 3111.3 | 2975.5 | 2888.0 | 2739.5 | 2569.6 | 2382.0 | 2333.1 | 1759.4 |
| 37.5° | 3475.4 | 3469.4 | 3385.2 | 3277.4 | 3151.5 | 3094.8 | 2970.5 | 2738.4 | 2563.0 | 2518.4 | 1887.6 |
| 40° | 3565.1 | 3553.0 | 3494.7 | 3414.4 | 3308.8 | 3259.3 | 3207.6 | 2948.0 | 2775.8 | 2720.3 | 2038.8 |
| 42.5° | 3591.5 | 3577.2 | 3538.7 | 3501.3 | 3437.5 | 3398.4 | 3454.0 | 3184.5 | 3009.6 | 2961.7 | 2211.5 |
| 45° | 3513.4 | 3505.1 | 3501.8 | 3528.8 | 3540.3 | 3551.3 | 3688.3 | 3446.3 | 3267.5 | 3231.2 | 2428.8 |
| 47.5° | 3325.3 | 3323.1 | 3352.2 | 3464.4 | 3586.5 | 3702.6 | 3942.9 | 3769.1 | 3601.9 | 3562.9 | 2732.4 |
| 50° | 2977.7 | 3000.2 | 3081.6 | 3278.5 | 3522.7 | 3788.4 | 4181.0 | 4216.8 | 4143.1 | 4085.9 | 3128.4 |
| 52.5° | 2434.3 | 2477.7 | 2660.3 | 2959.5 | 3310.4 | 3764.2 | 4291.0 | 4575.4 | 4650.7 | 4591.3 | 3412.2 |
| 55° | 1910.1 | 1950.8 | 2113.6 | 2493.1 | 2961.2 | 3579.9 | 4296.0 | 4699.1 | 4863.6 | 4808.6 | 3604.1 |
| 57.5° | 1422.8 | 1460.2 | 1608.2 | 1971.2 | 2486.0 | 3217.5 | 4178.3 | 4767.9 | 5116.0 | 5080.8 | 3907.1 |
| 60° | 930.0 | 966.9 | 1100.5 | 1417.9 | 1928.3 | 2689.5 | 3888.4 | 4753.6 | 5459.8 | 5456.5 | 4279.5 |
| 62.5° | 515.9 | 545.0 | 641.8 | 889.3 | 1345.8 | 2082.8 | 3433.1 | 4610.0 | 5792.5 | 5813.4 | 4586.4 |
| 65° | 264.0 | 282.7 | 341.5 | 488.9 | 814.5 | 1476.7 | 2834.1 | 4281.1 | 5946.5 | 5999.3 | 4667.2 |
| 67.5° | 172.7 | 178.7 | 193.0 | 254.1 | 436.1 | 928.9 | 2132.9 | 3753.7 | 5729.8 | 5791.4 | 4396.1 |
| 70° | 140.2 | 145.2 | 153.4 | 169.4 | 224.9 | 493.3 | 1400.8 | 2998.0 | 4787.7 | 4829.5 | 3500.7 |
| 72.5° | 102.8 | 109.4 | 125.4 | 135.8 | 162.2 | 270.6 | 728.7 | 1967.9 | 3287.9 | 3361.6 | 2200.0 |
| 75° | 75.9 | 79.7 | 92.9 | 107.2 | 132.5 | 171.0 | 278.8 | 1034.5 | 1697.8 | 1654.9 | 924.0 |
| 77.5° | 45.6 | 48.4 | 59.4 | 68.7 | 94.6 | 106.7 | 97.3 | 382.2 | 516.4 | 485.6 | 223.3 |
| 80° | 22.5 | 25.3 | 39.0 | 51.7 | 60.5 | 42.9 | 40.7 | 106.7 | 114.9 | 114.9 | 56.1 |
| 82.5° | 7.7 | 9.9 | 20.9 | 34.1 | 29.7 | 16.5 | 19.2 | 27.5 | 30.8 | 32.4 | 16.5 |
| 85° | 0.0 | 0.0 | 4.9 | 9.9 | 4.4 | 2.2 | 4.9 | 6.0 | 7.7 | 8.2 | 5.5 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 1.6 | 2.2 | 2.2 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



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CATALOG NUMBER: GWS-SA1F-730-U-T2R-W-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 547.8 | 547.8 | 547.8 | 547.8 | 547.8 | 547.8 | 547.8 | 547.8 | 547.8 | 547.8 | 547.8 |
| 2.5° | 562.1 | 536.2 | 497.2 | 462.0 | 435.0 | 409.7 | 390.5 | 375.1 | 372.3 | 363.5 | 364.6 |
| 5° | 587.4 | 540.6 | 468.6 | 413.0 | 374.0 | 347.6 | 325.6 | 309.1 | 301.9 | 294.8 | 289.3 |
| 7.5° | 626.4 | 558.8 | 457.6 | 389.9 | 344.3 | 303.6 | 269.5 | 242.0 | 228.8 | 220.5 | 215.0 |
| 10° | 674.3 | 584.1 | 458.1 | 376.2 | 308.5 | 246.4 | 199.6 | 169.4 | 155.1 | 150.7 | 150.1 |
| 12.5° | 731.5 | 616.0 | 462.5 | 353.6 | 256.8 | 183.1 | 147.9 | 134.2 | 129.8 | 125.9 | 125.9 |
| 15° | 792.0 | 651.7 | 462.5 | 312.4 | 195.8 | 143.0 | 128.1 | 119.3 | 113.8 | 111.6 | 110.5 |
| 17.5° | 855.8 | 685.3 | 451.5 | 255.7 | 150.1 | 125.9 | 113.8 | 105.6 | 101.2 | 97.9 | 96.8 |
| 20° | 924.0 | 717.2 | 424.0 | 195.8 | 128.7 | 112.7 | 101.2 | 92.9 | 88.5 | 85.2 | 85.2 |
| 22.5° | 993.3 | 746.9 | 379.5 | 150.7 | 113.8 | 100.1 | 89.1 | 81.4 | 77.0 | 73.7 | 73.7 |
| 25° | 1057.6 | 766.7 | 322.3 | 124.3 | 102.8 | 89.1 | 79.2 | 71.5 | 66.5 | 64.3 | 63.2 |
| 27.5° | 1117.6 | 779.3 | 259.0 | 109.4 | 92.4 | 79.7 | 69.3 | 62.1 | 58.3 | 56.6 | 55.5 |
| 30° | 1179.7 | 782.6 | 198.0 | 99.5 | 83.6 | 70.4 | 60.5 | 55.0 | 51.7 | 49.5 | 49.5 |
| 32.5° | 1240.2 | 778.8 | 151.2 | 91.3 | 75.9 | 62.1 | 53.9 | 48.9 | 46.2 | 44.5 | 44.0 |
| 35° | 1301.8 | 761.2 | 122.6 | 84.1 | 68.2 | 54.4 | 47.8 | 44.0 | 42.3 | 40.1 | 40.1 |
| 37.5° | 1368.9 | 737.5 | 106.7 | 77.0 | 60.5 | 48.9 | 42.9 | 40.1 | 37.9 | 36.3 | 35.7 |
| 40° | 1452.5 | 710.0 | 97.9 | 70.9 | 53.3 | 44.0 | 38.5 | 35.7 | 34.1 | 32.4 | 31.9 |
| 42.5° | 1551.5 | 683.1 | 93.5 | 64.3 | 47.8 | 39.0 | 34.6 | 31.3 | 29.7 | 27.5 | 26.9 |
| 45° | 1691.8 | 677.0 | 88.5 | 57.2 | 42.9 | 35.2 | 30.2 | 26.9 | 24.7 | 23.1 | 22.5 |
| 47.5° | 1917.3 | 694.1 | 80.3 | 49.5 | 37.9 | 30.8 | 25.8 | 23.1 | 20.3 | 18.7 | 17.6 |
| 50° | 2141.1 | 689.7 | 72.0 | 42.9 | 33.5 | 26.4 | 22.0 | 19.2 | 16.5 | 14.8 | 14.3 |
| 52.5° | 2263.2 | 668.8 | 64.3 | 37.9 | 29.1 | 22.5 | 18.7 | 15.4 | 13.7 | 12.1 | 11.5 |
| 55° | 2373.8 | 660.5 | 56.6 | 33.0 | 24.7 | 19.8 | 15.4 | 12.6 | 11.5 | 9.9 | 9.3 |
| 57.5° | 2590.5 | 679.8 | 50.0 | 28.6 | 21.4 | 17.0 | 13.2 | 10.4 | 9.3 | 7.7 | 7.1 |
| 60° | 2817.1 | 682.0 | 42.9 | 24.7 | 18.7 | 14.3 | 10.4 | 8.2 | 7.1 | 5.5 | 4.9 |
| 62.5° | 2935.3 | 626.4 | 35.2 | 20.9 | 15.4 | 12.1 | 8.8 | 6.6 | 5.5 | 3.3 | 3.3 |
| 65° | 2836.3 | 506.5 | 29.7 | 17.0 | 12.1 | 9.3 | 6.6 | 4.9 | 3.3 | 1.6 | 0.5 |
| 67.5° | 2510.2 | 360.2 | 24.7 | 13.7 | 8.8 | 6.6 | 4.9 | 3.3 | 0.5 | 0.0 | 0.0 |
| 70° | 1838.1 | 205.7 | 19.2 | 9.9 | 6.6 | 4.4 | 3.3 | 1.6 | 0.0 | 0.0 | 0.0 |
| 72.5° | 1129.7 | 110.0 | 14.3 | 6.6 | 4.9 | 3.3 | 2.7 | 1.1 | 0.0 | 0.0 | 0.0 |
| 75° | 428.4 | 52.8 | 8.8 | 4.4 | 3.8 | 2.7 | 1.6 | 0.5 | 0.0 | 0.0 | 0.0 |
| 77.5° | 116.0 | 25.8 | 4.9 | 3.3 | 2.7 | 1.6 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| 80° | 30.2 | 12.1 | 3.3 | 2.2 | 1.6 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 82.5° | 10.4 | 5.5 | 1.6 | 1.6 | 1.1 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 4.4 | 2.2 | 1.1 | 1.1 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 1.6 | 0.5 | 0.5 | 0.5 | 0.5 | 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: SP1-1908-441-2-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 | CRI (Ra): | 71.8 | R9: | -38.3 |
| CIE u': | 0.2508 | R1: | 67.5 | R10: | 62.5 |
| CIE v': | 0.5215 | R2: | 82.9 | R11: | 63.7 |
| Duv: | 0.0000 | R3: | 94.7 | R12: | 57.8 |
| CIE x: | 0.4374 | R4: | 67.7 | R13: | 70.4 |
| CIE y: | 0.4043 | R5: | 67.9 | R14: | 97.3 |
| CIE z: | 0.1583 | R6: | 77.6 | | |
| Peak Wavelength (nm): | 593 | R7: | 76.0 | | |
| Dominant Wavelength (nm): | 582 | R8: | 40.5 | | |
| Purity: | 53 | | | | |
| 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

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| 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

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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)