

Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions
(formerly Eaton)

Brand: McGRAW-EDISON

Report Number: P437663

Luminaire Tested: **ISS-SA1E-730-U-T4W-HSS**

Issue Date: 12/9/2020

Test Information

Test Method: LM-79-08
Report Number: P437663
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2011-074-13)
Test Lab: INNOVATION CENTER
Issue Date: 12/9/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: MCGRAW-EDISON
Catalog Number: ISS-SA1E-730-U-T4W-HSS
Description: IMPACT ELITE LED QUARTER SPHERE LUMINAIRE
(1) 70 CRI, 3000K, 1050mA LIGHTSQUARE WITH 16 LEDS AND TYPE IV WIDE OPTICS WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4859.9 lumens
Efficiency: N/A
Efficacy: 83.5 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type III - Short
BUG Rating: B1 - U0 - G2

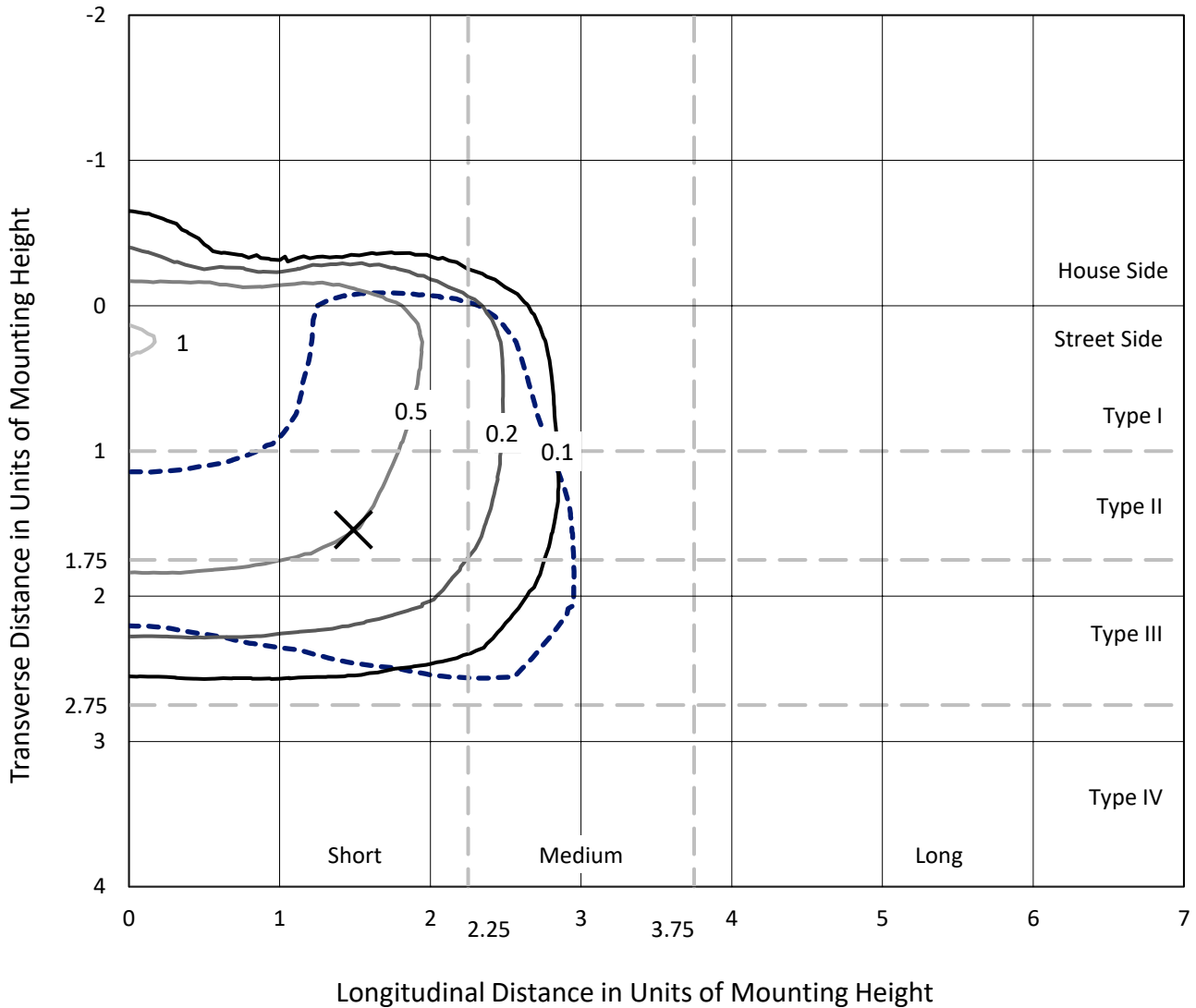
Input Watts (W): 58.2
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

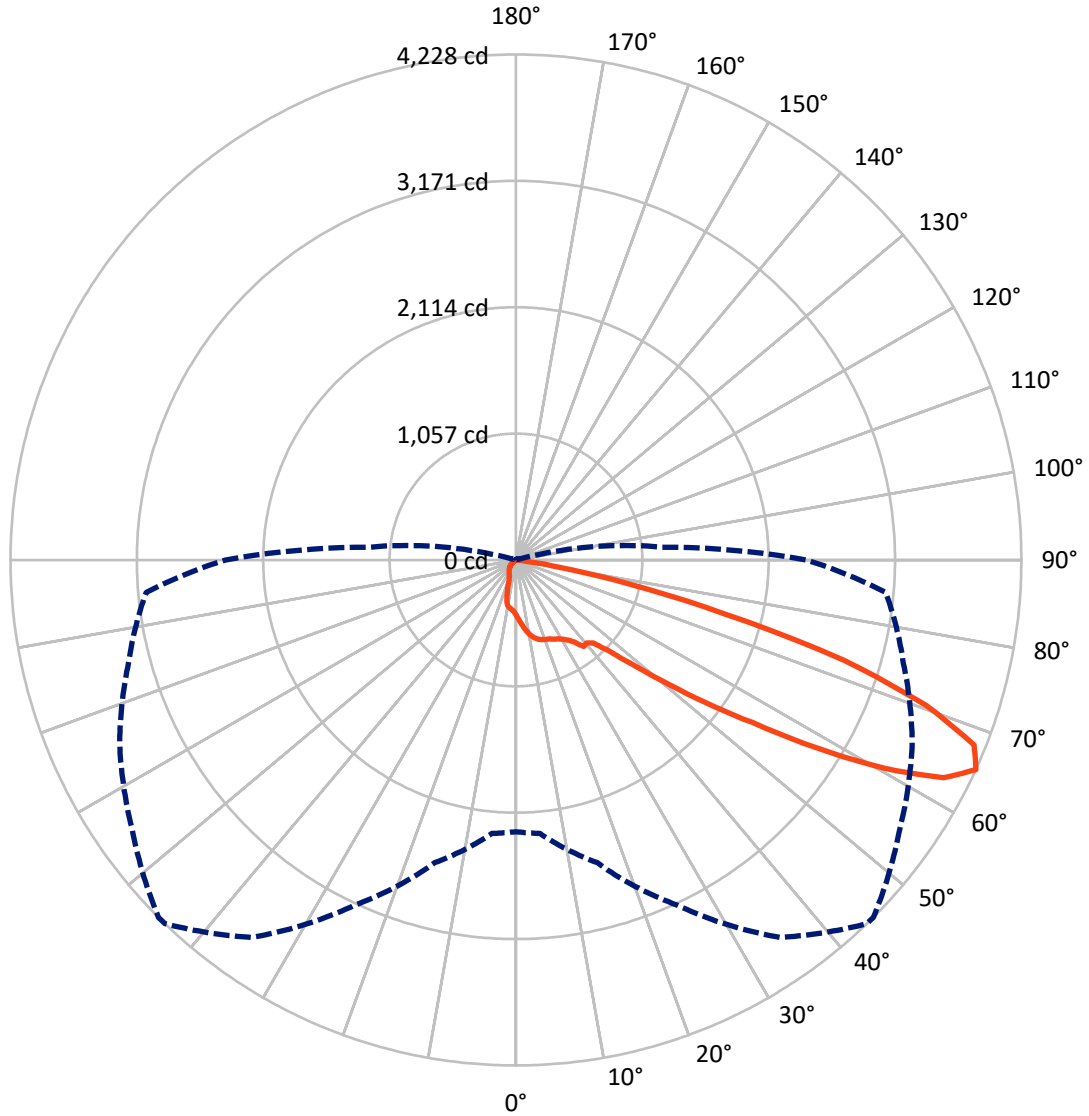
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 1.1 fc
 Type III - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 44-Deg Lateral - - - Horizontal Cone Through 65-Deg Vertical

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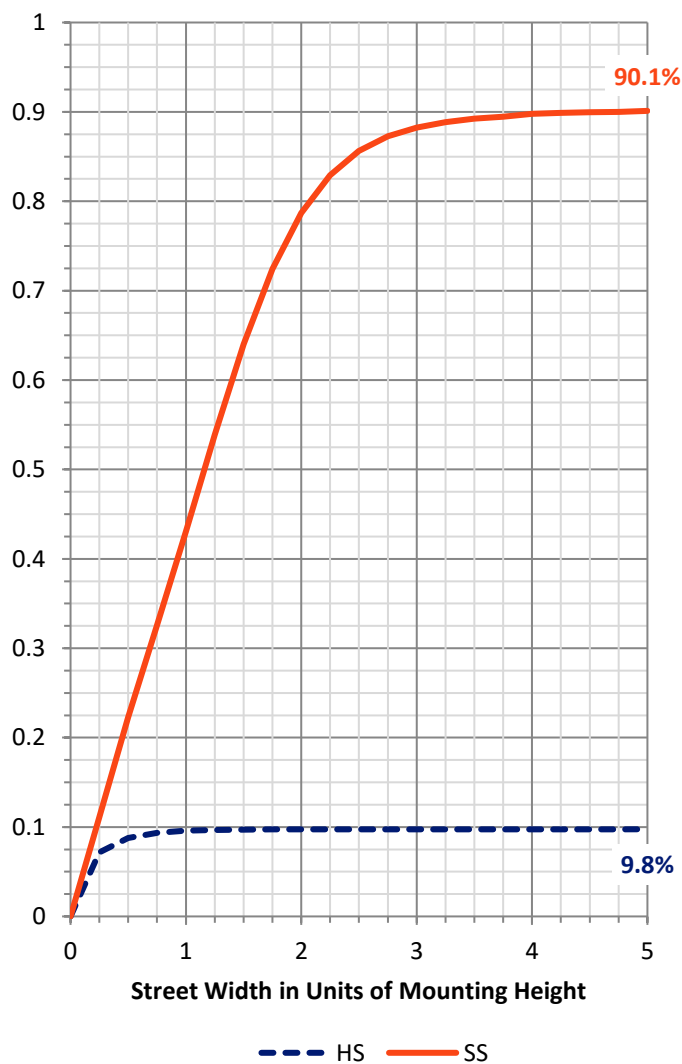
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 478.0 | 0.0 | 478.0 |
| | % Fixture | 9.8 | 0.0 | 9.8 |
| Street Side | Lumens | 4381.9 | 0.0 | 4381.9 |
| | % Fixture | 90.2 | 0.0 | 90.2 |
| Total | Lumens | 4859.9 | 0.0 | 4859.9 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 47.0 | 1.0 |
| 10°-20° | 141.5 | 2.9 |
| 20°-30° | 226.5 | 4.7 |
| 30°-40° | 336.3 | 6.9 |
| 40°-50° | 613.1 | 12.6 |
| 50°-60° | 1285.6 | 26.5 |
| 60°-70° | 1636.2 | 33.7 |
| 70°-80° | 549.2 | 11.3 |
| 80°-90° | 24.6 | 0.5 |
| 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° | 4859.9 | 100.0 |
| 0°-180° | 4859.9 | 100.0 |

Coefficient of Utilization



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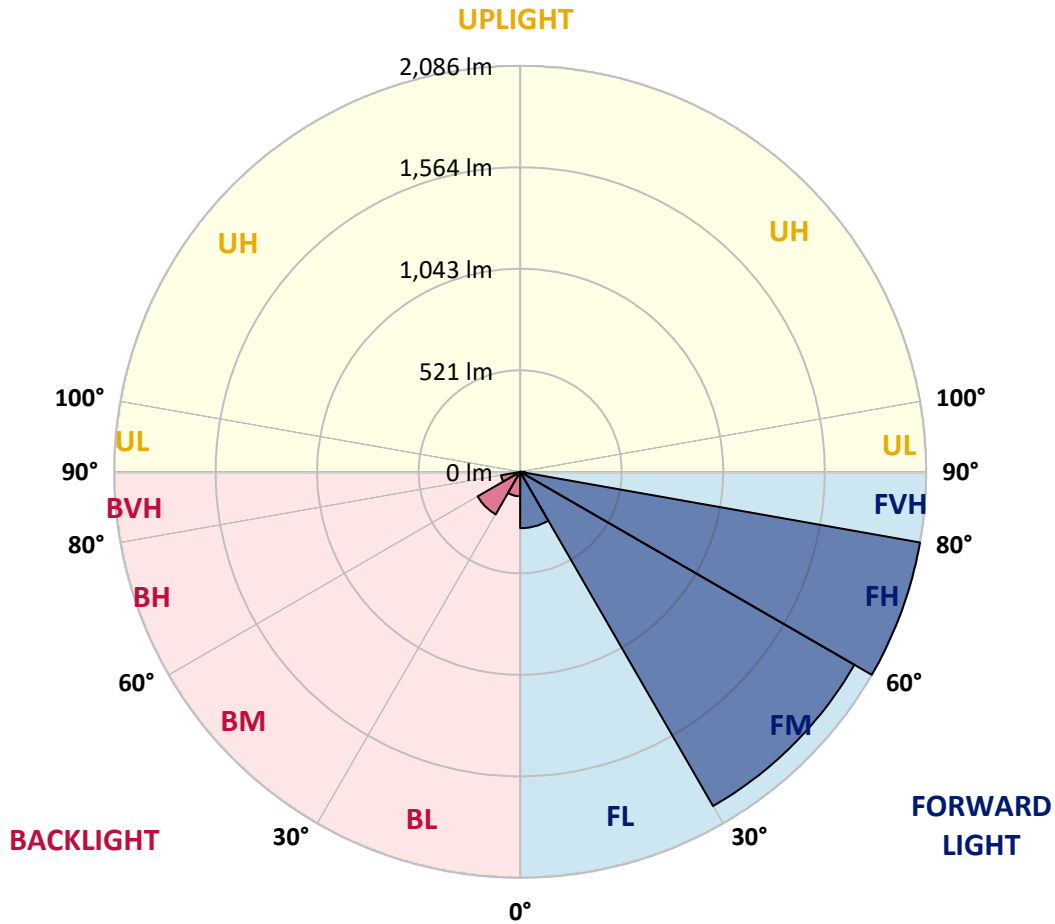
CATALOG NUMBER: ISS-SA1E-730-U-T4W-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 289.4 | 6.0 | | | |
| FM (30°-60°) | 1982.8 | 40.8 | | | |
| FH (60°-80°) | 2085.8 | 42.9 | | | G2/5000 |
| FVH (80°-90°) | 23.9 | 0.5 | | | G1/100 |
| BL (0°-30°) | 125.5 | 2.6 | B1/500 | | |
| BM (30°-60°) | 252.2 | 5.2 | B1/1000 | | |
| BH (60°-80°) | 99.6 | 2.1 | B0/110 | | G0/110 |
| BVH (80°-90°) | 0.7 | 0.0 | | | G0/10 |
| 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° | 44° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 462.9 | 462.9 | 462.9 | 462.9 | 462.9 | 462.9 | 462.9 | 462.9 | 462.9 | 462.9 | 462.9 |
| 2.5° | 521.7 | 524.0 | 514.6 | 517.0 | 512.3 | 502.9 | 500.5 | 493.5 | 484.1 | 477.0 | 470.0 |
| 5° | 589.8 | 587.5 | 582.8 | 573.4 | 561.6 | 547.5 | 542.8 | 528.7 | 512.3 | 493.5 | 479.4 |
| 7.5° | 646.2 | 646.2 | 639.2 | 629.8 | 611.0 | 592.2 | 587.5 | 568.7 | 545.2 | 519.3 | 493.5 |
| 10° | 695.6 | 693.2 | 686.2 | 674.4 | 650.9 | 634.5 | 627.4 | 603.9 | 575.7 | 547.5 | 517.0 |
| 12.5° | 733.2 | 733.2 | 723.8 | 707.3 | 681.5 | 665.0 | 660.3 | 639.2 | 611.0 | 578.1 | 535.8 |
| 15° | 754.3 | 752.0 | 744.9 | 723.8 | 705.0 | 686.2 | 683.8 | 665.0 | 641.5 | 606.3 | 561.6 |
| 17.5° | 754.3 | 756.7 | 744.9 | 733.2 | 716.7 | 700.3 | 697.9 | 683.8 | 660.3 | 629.8 | 582.8 |
| 20° | 744.9 | 744.9 | 735.5 | 726.1 | 716.7 | 709.7 | 707.3 | 697.9 | 679.1 | 653.3 | 606.3 |
| 22.5° | 733.2 | 730.8 | 728.5 | 721.4 | 719.1 | 716.7 | 719.1 | 714.4 | 702.6 | 674.4 | 629.8 |
| 25° | 730.8 | 728.5 | 723.8 | 719.1 | 721.4 | 733.2 | 733.2 | 735.5 | 723.8 | 700.3 | 658.0 |
| 27.5° | 740.2 | 740.2 | 733.2 | 726.1 | 730.8 | 747.3 | 747.3 | 754.3 | 747.3 | 730.8 | 688.5 |
| 30° | 780.2 | 770.8 | 759.0 | 744.9 | 749.6 | 768.4 | 770.8 | 784.9 | 784.9 | 773.1 | 737.9 |
| 32.5° | 834.2 | 824.8 | 794.3 | 775.5 | 775.5 | 799.0 | 799.0 | 822.5 | 843.6 | 820.1 | 766.1 |
| 35° | 876.5 | 871.8 | 836.6 | 813.1 | 820.1 | 841.3 | 848.3 | 885.9 | 904.7 | 846.0 | 780.2 |
| 37.5° | 1017.5 | 1010.5 | 942.3 | 855.4 | 860.1 | 918.8 | 923.5 | 940.0 | 923.5 | 857.7 | 808.4 |
| 40° | 1205.5 | 1210.2 | 1139.7 | 996.4 | 885.9 | 911.8 | 911.8 | 940.0 | 949.4 | 909.4 | 876.5 |
| 42.5° | 1489.9 | 1461.7 | 1391.2 | 1196.1 | 1001.1 | 949.4 | 951.7 | 991.7 | 1041.0 | 1017.5 | 1022.2 |
| 45° | 1736.6 | 1715.5 | 1640.3 | 1452.3 | 1186.7 | 1073.9 | 1064.5 | 1116.2 | 1212.6 | 1233.7 | 1287.8 |
| 47.5° | 1955.1 | 1934.0 | 1901.1 | 1724.9 | 1464.0 | 1292.5 | 1257.2 | 1308.9 | 1475.8 | 1586.2 | 1623.8 |
| 50° | 2218.3 | 2223.0 | 2147.8 | 2046.8 | 1767.2 | 1586.2 | 1576.8 | 1579.2 | 1842.4 | 1934.0 | 1988.0 |
| 52.5° | 2552.0 | 2545.0 | 2413.4 | 2359.3 | 2187.8 | 1971.6 | 1917.6 | 1950.4 | 2211.3 | 2277.1 | 2366.4 |
| 55° | 2789.4 | 2782.3 | 2718.9 | 2709.5 | 2653.1 | 2399.3 | 2385.2 | 2382.8 | 2617.8 | 2646.0 | 2751.8 |
| 57.5° | 2928.0 | 2939.8 | 2984.4 | 3104.3 | 3151.3 | 2968.0 | 2928.0 | 2850.5 | 2982.1 | 2975.0 | 3090.2 |
| 60° | 2951.5 | 2970.3 | 3097.2 | 3372.2 | 3635.4 | 3536.7 | 3482.6 | 3280.5 | 3315.8 | 3257.0 | 3327.5 |
| 62.5° | 2761.2 | 2815.2 | 3040.8 | 3428.6 | 3879.7 | 4011.3 | 3966.7 | 3654.2 | 3571.9 | 3449.7 | 3360.4 |
| 65° | 2272.4 | 2295.9 | 2620.2 | 3184.2 | 3853.9 | 4227.5 | 4227.5 | 3919.7 | 3656.5 | 3355.7 | 3104.3 |
| 67.5° | 1569.8 | 1581.5 | 1976.3 | 2568.5 | 3459.1 | 4133.5 | 4168.8 | 3915.0 | 3508.5 | 2986.8 | 2530.9 |
| 70° | 890.6 | 956.4 | 1196.1 | 1795.4 | 2725.9 | 3640.1 | 3677.7 | 3562.5 | 2937.4 | 2213.6 | 1659.1 |
| 72.5° | 371.3 | 413.6 | 582.8 | 1045.7 | 1854.1 | 2866.9 | 2932.7 | 2824.6 | 2194.8 | 1351.2 | 784.9 |
| 75° | 115.1 | 119.8 | 192.7 | 455.9 | 1012.8 | 1800.1 | 1910.5 | 1905.8 | 1311.3 | 632.1 | 319.6 |
| 77.5° | 63.4 | 65.8 | 91.6 | 185.6 | 444.1 | 961.1 | 1029.3 | 972.9 | 648.6 | 272.6 | 98.7 |
| 80° | 30.5 | 32.9 | 49.3 | 89.3 | 195.0 | 359.5 | 423.0 | 392.4 | 225.6 | 129.2 | 32.9 |
| 82.5° | 9.4 | 11.7 | 23.5 | 39.9 | 77.5 | 84.6 | 84.6 | 150.4 | 115.1 | 84.6 | 16.4 |
| 85° | 0.0 | 0.0 | 7.0 | 14.1 | 14.1 | 14.1 | 14.1 | 32.9 | 54.0 | 51.7 | 7.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 4.7 | 2.3 |
| 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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CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 462.9 | 462.9 | 462.9 | 462.9 | 462.9 | 462.9 | 462.9 | 462.9 | 462.9 | 462.9 | 462.9 |
| 2.5° | 465.3 | 462.9 | 453.5 | 444.1 | 439.4 | 434.7 | 430.0 | 425.3 | 425.3 | 427.7 | 425.3 |
| 5° | 470.0 | 462.9 | 448.8 | 434.7 | 425.3 | 418.3 | 408.9 | 406.5 | 404.2 | 406.5 | 406.5 |
| 7.5° | 481.7 | 472.3 | 451.2 | 430.0 | 415.9 | 404.2 | 397.1 | 394.8 | 390.1 | 390.1 | 390.1 |
| 10° | 500.5 | 484.1 | 455.9 | 432.4 | 413.6 | 397.1 | 376.0 | 352.5 | 338.4 | 329.0 | 321.9 |
| 12.5° | 519.3 | 500.5 | 462.9 | 434.7 | 413.6 | 366.6 | 314.9 | 270.2 | 246.7 | 235.0 | 232.6 |
| 15° | 540.5 | 517.0 | 477.0 | 444.1 | 387.7 | 300.8 | 230.3 | 192.7 | 183.3 | 183.3 | 180.9 |
| 17.5° | 556.9 | 535.8 | 488.8 | 446.5 | 340.7 | 225.6 | 173.9 | 162.1 | 164.5 | 169.2 | 169.2 |
| 20° | 582.8 | 556.9 | 505.2 | 425.3 | 263.2 | 169.2 | 152.7 | 155.1 | 157.4 | 159.8 | 162.1 |
| 22.5° | 606.3 | 578.1 | 524.0 | 378.3 | 192.7 | 145.7 | 145.7 | 148.0 | 150.4 | 152.7 | 155.1 |
| 25° | 634.5 | 608.6 | 542.8 | 310.2 | 148.0 | 133.9 | 136.3 | 141.0 | 143.3 | 145.7 | 145.7 |
| 27.5° | 667.4 | 639.2 | 542.8 | 244.4 | 129.2 | 124.5 | 124.5 | 129.2 | 131.6 | 136.3 | 136.3 |
| 30° | 712.0 | 681.5 | 528.7 | 180.9 | 119.8 | 115.1 | 112.8 | 117.5 | 119.8 | 124.5 | 124.5 |
| 32.5° | 740.2 | 721.4 | 498.2 | 136.3 | 110.4 | 105.7 | 103.4 | 103.4 | 105.7 | 110.4 | 110.4 |
| 35° | 768.4 | 759.0 | 451.2 | 117.5 | 103.4 | 98.7 | 94.0 | 89.3 | 89.3 | 89.3 | 89.3 |
| 37.5° | 813.1 | 827.2 | 383.0 | 108.1 | 98.7 | 91.6 | 84.6 | 77.5 | 72.8 | 70.5 | 68.1 |
| 40° | 904.7 | 916.5 | 314.9 | 101.0 | 91.6 | 84.6 | 72.8 | 63.4 | 56.4 | 51.7 | 51.7 |
| 42.5° | 1048.1 | 1038.7 | 239.7 | 96.3 | 84.6 | 75.2 | 61.1 | 51.7 | 42.3 | 37.6 | 37.6 |
| 45° | 1297.2 | 1191.4 | 176.2 | 89.3 | 79.9 | 68.1 | 51.7 | 39.9 | 30.5 | 28.2 | 28.2 |
| 47.5° | 1602.7 | 1367.7 | 133.9 | 84.6 | 72.8 | 58.7 | 39.9 | 30.5 | 23.5 | 21.1 | 21.1 |
| 50° | 1931.7 | 1548.6 | 110.4 | 77.5 | 65.8 | 49.3 | 32.9 | 21.1 | 16.4 | 16.4 | 16.4 |
| 52.5° | 2241.8 | 1670.8 | 91.6 | 70.5 | 56.4 | 39.9 | 23.5 | 16.4 | 14.1 | 14.1 | 14.1 |
| 55° | 2530.9 | 1746.0 | 75.2 | 61.1 | 47.0 | 30.5 | 18.8 | 14.1 | 11.7 | 9.4 | 9.4 |
| 57.5° | 2728.3 | 1734.3 | 61.1 | 49.3 | 35.2 | 21.1 | 14.1 | 11.7 | 9.4 | 7.0 | 7.0 |
| 60° | 2796.4 | 1630.9 | 47.0 | 39.9 | 25.8 | 16.4 | 11.7 | 9.4 | 7.0 | 4.7 | 4.7 |
| 62.5° | 2700.1 | 1426.4 | 37.6 | 30.5 | 18.8 | 14.1 | 9.4 | 7.0 | 4.7 | 2.3 | 2.3 |
| 65° | 2429.8 | 1226.7 | 28.2 | 21.1 | 14.1 | 9.4 | 7.0 | 4.7 | 2.3 | 0.0 | 0.0 |
| 67.5° | 1934.0 | 951.7 | 23.5 | 14.1 | 9.4 | 7.0 | 4.7 | 2.3 | 0.0 | 0.0 | 0.0 |
| 70° | 1210.2 | 596.9 | 18.8 | 9.4 | 7.0 | 4.7 | 2.3 | 0.0 | 0.0 | 0.0 | 0.0 |
| 72.5° | 587.5 | 293.7 | 14.1 | 7.0 | 4.7 | 2.3 | 2.3 | 0.0 | 0.0 | 0.0 | 0.0 |
| 75° | 218.5 | 96.3 | 11.7 | 7.0 | 2.3 | 2.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 77.5° | 70.5 | 32.9 | 9.4 | 7.0 | 4.7 | 2.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 80° | 25.8 | 14.1 | 4.7 | 2.3 | 2.3 | 2.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 82.5° | 11.7 | 7.0 | 2.3 | 2.3 | 2.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 4.7 | 4.7 | 2.3 | 2.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 2.3 | 2.3 | 2.3 | 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



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

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

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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 | 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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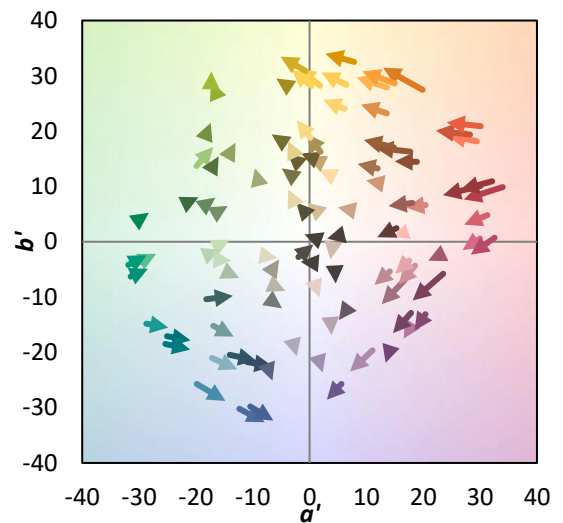
TM-30-18

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)