

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: P437052

Luminaire Tested: **ISS-SA1A-760-U-T3**

Issue Date: 12/9/2020

Test Information

Test Method: LM-79-08
Report Number: P437052
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2011-074-8)
Test Lab: INNOVATION CENTER
Issue Date: 12/9/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: ISS-SA1A-760-U-T3
Description: IMPACT ELITE LED QUARTER SPHERE LUMINAIRE
(1) 70 CRI, 5700K, 350mA LIGHTSQUARE WITH 16 LEDS AND TYPE III OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2778 lumens
Efficiency: N/A
Efficacy: 138.2 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type III - Medium
BUG Rating: B1 - U0 - G1

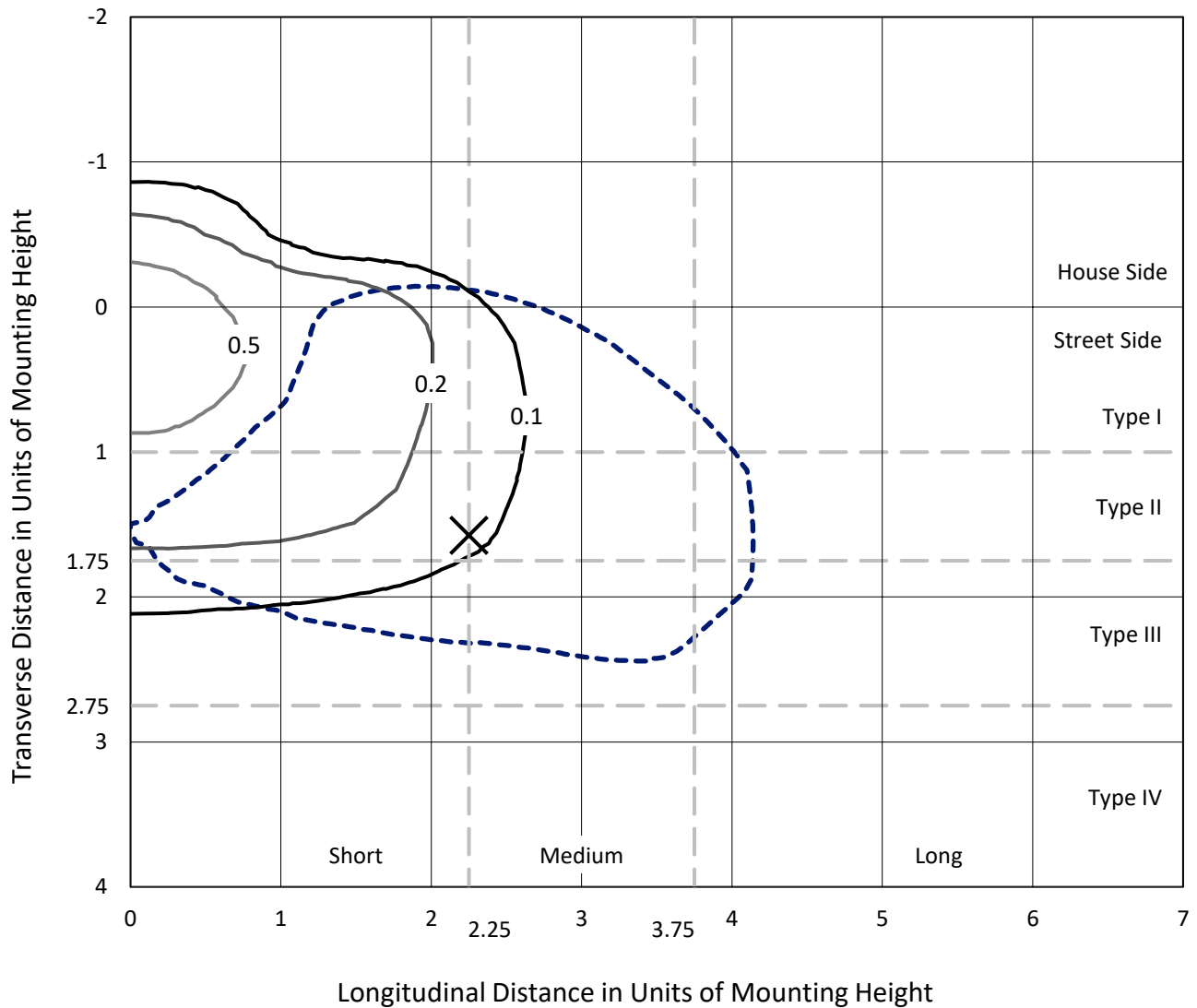
Input Watts (W): 20.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

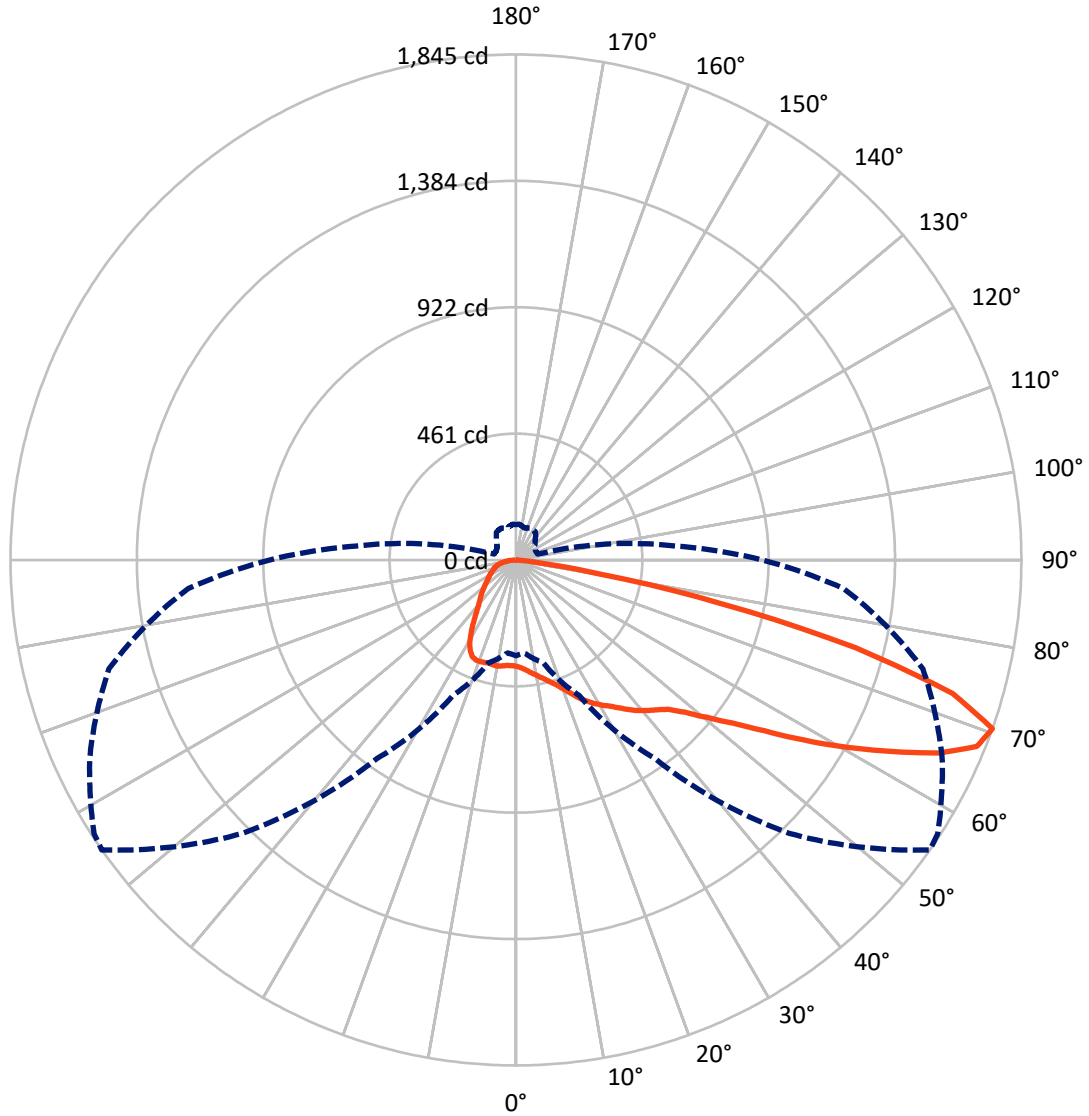
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 0.7 fc
 Type III - Medium - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 55-Deg Lateral - - - Horizontal Cone Through 70-Deg Vertical

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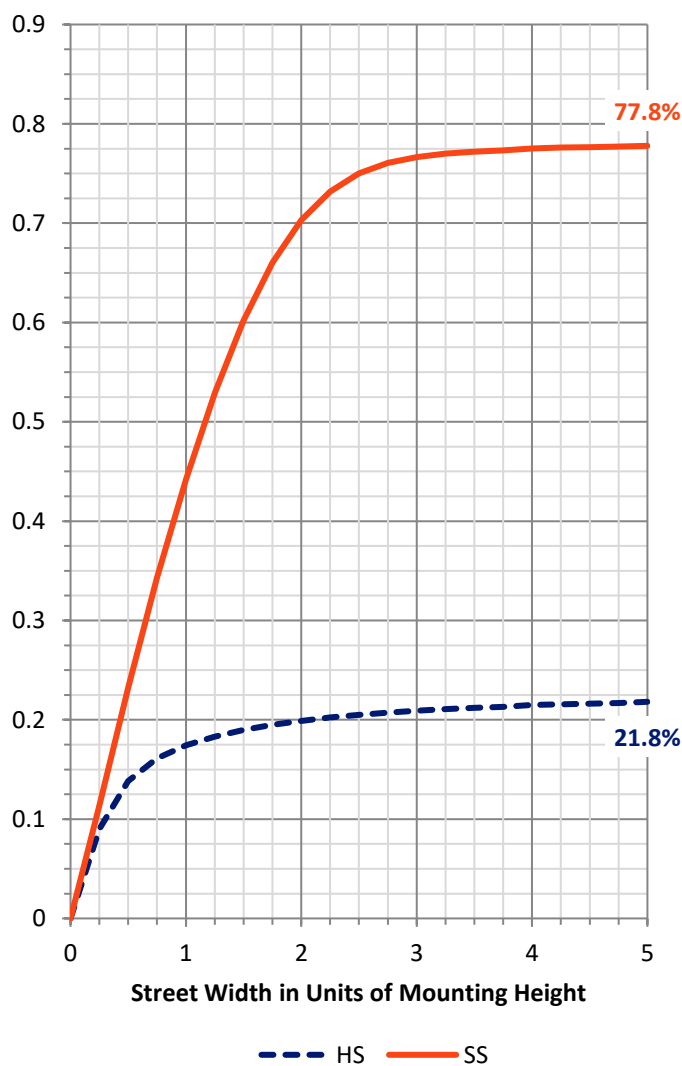
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 614.5 | 0.0 | 614.5 |
| | % Fixture | 22.1 | 0.0 | 22.1 |
| Street Side | Lumens | 2163.5 | 0.0 | 2163.5 |
| | % Fixture | 77.9 | 0.0 | 77.9 |
| Total | Lumens | 2778.0 | 0.0 | 2778.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 38.2 | 1.4 |
| 10°-20° | 121.6 | 4.4 |
| 20°-30° | 211.5 | 7.6 |
| 30°-40° | 298.1 | 10.7 |
| 40°-50° | 395.1 | 14.2 |
| 50°-60° | 575.6 | 20.7 |
| 60°-70° | 718.4 | 25.9 |
| 70°-80° | 382.6 | 13.8 |
| 80°-90° | 36.9 | 1.3 |
| 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° | 2778.0 | 100.0 |
| 0°-180° | 2778.0 | 100.0 |

Coefficient of Utilization

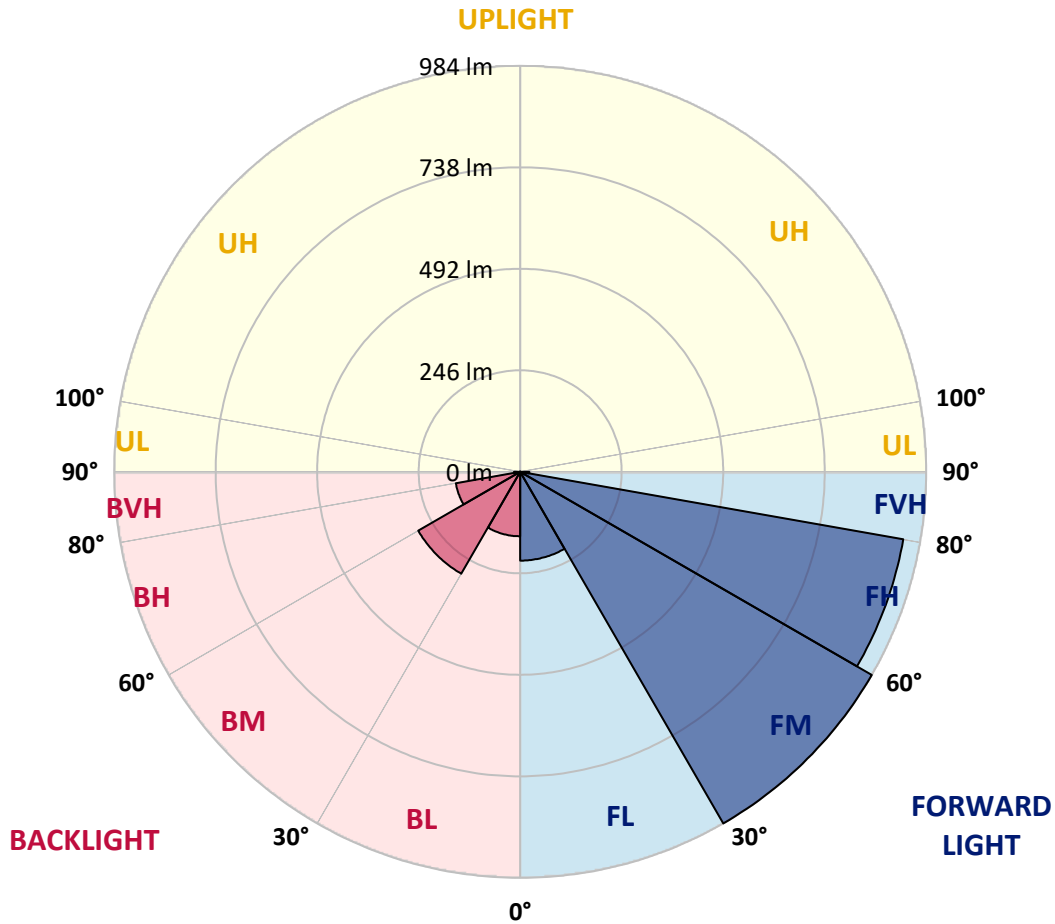


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 215.2 | 7.7 | | | |
| FM (30°-60°) | 983.8 | 35.4 | | | |
| FH (60°-80°) | 942.6 | 33.9 | | | G1/1800 |
| FVH (80°-90°) | 22.0 | 0.8 | | | G1/100 |
| BL (0°-30°) | 156.2 | 5.6 | B1/500 | | |
| BM (30°-60°) | 285.1 | 10.3 | B1/1000 | | |
| BH (60°-80°) | 158.4 | 5.7 | B1/500 | | G1/500 |
| BVH (80°-90°) | 14.9 | 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-G1
 Type III Medium





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 57° | 65° | 75° | 85° |
|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 388.0 | 388.0 | 388.0 | 388.0 | 388.0 | 388.0 | 388.0 | 388.0 | 388.0 | 388.0 | 388.0 |
| 2.5° | 401.0 | 400.0 | 400.0 | 399.0 | 398.0 | 397.0 | 395.0 | 393.0 | 393.0 | 391.0 | 391.0 |
| 5° | 411.0 | 409.0 | 410.0 | 409.0 | 409.0 | 407.0 | 404.0 | 404.0 | 403.0 | 398.0 | 394.0 |
| 7.5° | 421.0 | 420.0 | 420.0 | 421.0 | 420.0 | 418.0 | 417.0 | 416.0 | 412.0 | 406.0 | 400.0 |
| 10° | 435.0 | 435.0 | 435.0 | 434.0 | 434.0 | 432.0 | 429.0 | 429.0 | 424.0 | 417.0 | 410.0 |
| 12.5° | 456.0 | 455.0 | 454.0 | 454.0 | 451.0 | 447.0 | 444.0 | 444.0 | 441.0 | 430.0 | 421.0 |
| 15° | 479.9 | 476.9 | 474.9 | 474.9 | 470.9 | 464.0 | 461.0 | 462.0 | 459.0 | 446.0 | 433.0 |
| 17.5° | 503.9 | 503.9 | 501.9 | 496.9 | 491.9 | 486.9 | 479.9 | 481.9 | 478.9 | 466.0 | 449.0 |
| 20° | 525.9 | 523.9 | 523.9 | 520.9 | 513.9 | 507.9 | 503.9 | 502.9 | 500.9 | 486.9 | 467.0 |
| 22.5° | 549.9 | 548.9 | 545.9 | 543.9 | 538.9 | 535.9 | 533.9 | 533.9 | 525.9 | 506.9 | 480.9 |
| 25° | 578.9 | 577.9 | 577.9 | 569.9 | 565.9 | 560.9 | 563.9 | 560.9 | 556.9 | 528.9 | 495.9 |
| 27.5° | 607.9 | 607.9 | 606.9 | 602.9 | 591.9 | 588.9 | 590.9 | 588.9 | 587.9 | 549.9 | 509.9 |
| 30° | 638.9 | 637.9 | 634.9 | 633.9 | 622.9 | 614.9 | 613.9 | 609.9 | 609.9 | 568.9 | 519.9 |
| 32.5° | 664.9 | 663.9 | 665.9 | 661.9 | 654.9 | 643.9 | 636.9 | 636.9 | 629.9 | 587.9 | 531.9 |
| 35° | 688.9 | 690.9 | 690.9 | 688.9 | 682.9 | 671.9 | 664.9 | 666.9 | 656.9 | 604.9 | 546.9 |
| 37.5° | 715.9 | 713.9 | 710.9 | 708.9 | 700.9 | 695.9 | 695.9 | 697.9 | 682.9 | 622.9 | 566.9 |
| 40° | 721.9 | 726.9 | 733.9 | 725.9 | 721.9 | 720.9 | 722.9 | 717.9 | 702.9 | 650.9 | 600.9 |
| 42.5° | 733.9 | 737.9 | 750.9 | 747.9 | 744.9 | 747.9 | 747.9 | 740.9 | 733.9 | 688.9 | 646.9 |
| 45° | 763.9 | 770.9 | 780.9 | 781.9 | 780.9 | 785.9 | 776.9 | 775.9 | 774.9 | 743.9 | 708.9 |
| 47.5° | 796.9 | 804.9 | 827.9 | 824.9 | 835.9 | 845.9 | 829.9 | 828.9 | 831.9 | 816.9 | 787.9 |
| 50° | 835.9 | 843.9 | 872.9 | 883.9 | 913.9 | 931.9 | 902.9 | 889.9 | 910.9 | 909.9 | 887.9 |
| 52.5° | 880.9 | 890.9 | 910.9 | 948.9 | 999.9 | 1018.9 | 987.9 | 976.9 | 1001.9 | 1013.9 | 993.9 |
| 55° | 911.9 | 919.9 | 950.9 | 1009.9 | 1092.9 | 1117.9 | 1099.9 | 1089.9 | 1116.9 | 1126.9 | 1105.9 |
| 57.5° | 922.9 | 924.9 | 970.9 | 1063.9 | 1178.9 | 1242.9 | 1239.9 | 1232.9 | 1221.9 | 1246.9 | 1240.9 |
| 60° | 903.9 | 914.9 | 973.9 | 1087.9 | 1255.9 | 1376.9 | 1387.9 | 1371.9 | 1357.9 | 1363.9 | 1343.9 |
| 62.5° | 878.9 | 887.9 | 949.9 | 1090.9 | 1307.9 | 1497.8 | 1538.8 | 1520.8 | 1485.8 | 1469.8 | 1422.8 |
| 65° | 790.9 | 790.9 | 851.9 | 1029.9 | 1298.9 | 1596.8 | 1697.8 | 1666.8 | 1602.8 | 1545.8 | 1419.8 |
| 67.5° | 604.9 | 601.9 | 660.9 | 845.9 | 1171.9 | 1606.8 | 1814.8 | 1798.8 | 1695.8 | 1574.8 | 1363.9 |
| 70° | 349.0 | 340.0 | 389.0 | 545.9 | 884.9 | 1410.8 | 1844.8 | 1835.8 | 1716.8 | 1537.8 | 1200.9 |
| 72.5° | 121.0 | 129.0 | 161.0 | 232.0 | 486.9 | 1015.9 | 1666.8 | 1685.8 | 1616.8 | 1396.9 | 964.9 |
| 75° | 63.0 | 63.0 | 74.0 | 101.0 | 206.0 | 523.9 | 1280.9 | 1339.9 | 1354.9 | 1168.9 | 688.9 |
| 77.5° | 46.0 | 47.0 | 53.0 | 65.0 | 98.0 | 201.0 | 768.9 | 824.9 | 937.9 | 804.9 | 398.0 |
| 80° | 31.0 | 32.0 | 38.0 | 43.0 | 60.0 | 78.0 | 307.0 | 337.0 | 465.0 | 360.0 | 154.0 |
| 82.5° | 23.0 | 24.0 | 24.0 | 25.0 | 33.0 | 36.0 | 81.0 | 100.0 | 160.0 | 107.0 | 55.0 |
| 85° | 5.0 | 5.0 | 10.0 | 10.0 | 10.0 | 10.0 | 18.0 | 20.0 | 30.0 | 32.0 | 18.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 2.0 | 2.0 | 2.0 | 3.0 | 3.0 |
| 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° | 388.0 | 388.0 | 388.0 | 388.0 | 388.0 | 388.0 | 388.0 | 388.0 | 388.0 | 388.0 | 388.0 |
| 2.5° | 390.0 | 389.0 | 388.0 | 387.0 | 386.0 | 385.0 | 384.0 | 385.0 | 385.0 | 387.0 | 388.0 |
| 5° | 393.0 | 390.0 | 389.0 | 387.0 | 386.0 | 386.0 | 386.0 | 387.0 | 388.0 | 389.0 | 390.0 |
| 7.5° | 398.0 | 397.0 | 394.0 | 390.0 | 389.0 | 389.0 | 387.0 | 387.0 | 387.0 | 389.0 | 389.0 |
| 10° | 407.0 | 404.0 | 400.0 | 396.0 | 393.0 | 387.0 | 382.0 | 378.0 | 380.0 | 383.0 | 383.0 |
| 12.5° | 417.0 | 412.0 | 407.0 | 400.0 | 392.0 | 382.0 | 377.0 | 378.0 | 378.0 | 381.0 | 382.0 |
| 15° | 430.0 | 426.0 | 415.0 | 403.0 | 389.0 | 381.0 | 379.0 | 377.0 | 377.0 | 379.0 | 381.0 |
| 17.5° | 444.0 | 437.0 | 423.0 | 405.0 | 391.0 | 382.0 | 378.0 | 370.0 | 366.0 | 365.0 | 367.0 |
| 20° | 457.0 | 449.0 | 430.0 | 407.0 | 393.0 | 381.0 | 367.0 | 354.0 | 344.0 | 342.0 | 340.0 |
| 22.5° | 468.0 | 458.0 | 435.0 | 411.0 | 393.0 | 371.0 | 347.0 | 328.0 | 314.0 | 310.0 | 312.0 |
| 25° | 479.9 | 465.0 | 441.0 | 415.0 | 386.0 | 351.0 | 318.0 | 295.0 | 281.0 | 275.0 | 275.0 |
| 27.5° | 489.9 | 474.9 | 447.0 | 412.0 | 368.0 | 324.0 | 286.0 | 263.0 | 252.0 | 246.0 | 245.0 |
| 30° | 498.9 | 482.9 | 459.0 | 403.0 | 342.0 | 287.0 | 254.0 | 238.0 | 231.0 | 224.0 | 225.0 |
| 32.5° | 510.9 | 496.9 | 468.0 | 384.0 | 307.0 | 253.0 | 228.0 | 220.0 | 213.0 | 208.0 | 210.0 |
| 35° | 527.9 | 519.9 | 470.9 | 360.0 | 271.0 | 229.0 | 212.0 | 203.0 | 197.0 | 190.0 | 190.0 |
| 37.5° | 551.9 | 544.9 | 461.0 | 324.0 | 239.0 | 211.0 | 199.0 | 187.0 | 177.0 | 169.0 | 167.0 |
| 40° | 580.9 | 570.9 | 444.0 | 284.0 | 214.0 | 199.0 | 188.0 | 173.0 | 159.0 | 148.0 | 146.0 |
| 42.5° | 626.9 | 597.9 | 419.0 | 243.0 | 196.0 | 189.0 | 174.0 | 155.0 | 141.0 | 133.0 | 131.0 |
| 45° | 675.9 | 628.9 | 383.0 | 208.0 | 182.0 | 177.0 | 160.0 | 141.0 | 131.0 | 125.0 | 124.0 |
| 47.5° | 737.9 | 662.9 | 349.0 | 182.0 | 166.0 | 165.0 | 145.0 | 133.0 | 125.0 | 121.0 | 120.0 |
| 50° | 819.9 | 705.9 | 315.0 | 162.0 | 152.0 | 149.0 | 138.0 | 128.0 | 122.0 | 119.0 | 118.0 |
| 52.5° | 914.9 | 755.9 | 288.0 | 147.0 | 139.0 | 137.0 | 134.0 | 126.0 | 122.0 | 119.0 | 118.0 |
| 55° | 1004.9 | 807.9 | 259.0 | 133.0 | 128.0 | 130.0 | 132.0 | 126.0 | 123.0 | 121.0 | 119.0 |
| 57.5° | 1103.9 | 851.9 | 226.0 | 122.0 | 119.0 | 124.0 | 130.0 | 127.0 | 125.0 | 122.0 | 121.0 |
| 60° | 1164.9 | 882.9 | 182.0 | 112.0 | 112.0 | 119.0 | 127.0 | 125.0 | 121.0 | 121.0 | 121.0 |
| 62.5° | 1191.9 | 877.9 | 144.0 | 102.0 | 104.0 | 113.0 | 122.0 | 120.0 | 117.0 | 122.0 | 122.0 |
| 65° | 1156.9 | 820.9 | 117.0 | 93.0 | 96.0 | 105.0 | 117.0 | 117.0 | 117.0 | 125.0 | 125.0 |
| 67.5° | 1065.9 | 734.9 | 96.0 | 85.0 | 88.0 | 99.0 | 117.0 | 124.0 | 123.0 | 132.0 | 132.0 |
| 70° | 899.9 | 582.9 | 83.0 | 79.0 | 83.0 | 99.0 | 124.0 | 128.0 | 121.0 | 131.0 | 129.0 |
| 72.5° | 685.9 | 407.0 | 74.0 | 73.0 | 78.0 | 96.0 | 125.0 | 123.0 | 114.0 | 117.0 | 114.0 |
| 75° | 451.0 | 247.0 | 65.0 | 67.0 | 69.0 | 85.0 | 119.0 | 115.0 | 104.0 | 102.0 | 100.0 |
| 77.5° | 248.0 | 124.0 | 57.0 | 60.0 | 60.0 | 72.0 | 108.0 | 99.0 | 90.0 | 85.0 | 83.0 |
| 80° | 99.0 | 63.0 | 50.0 | 53.0 | 49.0 | 58.0 | 81.0 | 77.0 | 69.0 | 65.0 | 63.0 |
| 82.5° | 45.0 | 35.0 | 42.0 | 44.0 | 37.0 | 43.0 | 60.0 | 58.0 | 52.0 | 45.0 | 43.0 |
| 85° | 17.0 | 20.0 | 32.0 | 30.0 | 26.0 | 25.0 | 34.0 | 31.0 | 25.0 | 20.0 | 20.0 |
| 87.5° | 2.0 | 4.0 | 8.0 | 11.0 | 6.0 | 4.0 | 2.0 | 1.0 | 1.0 | 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: SP1-1908-441-9-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

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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 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 | | | |

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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

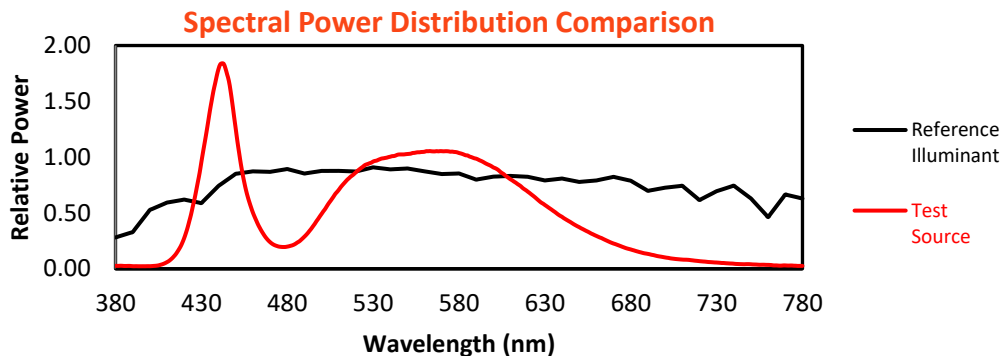
| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 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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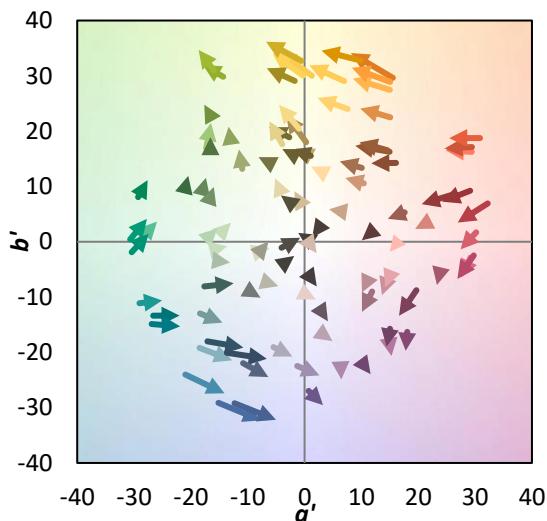
TM-30-18

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)