

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: P436964

Luminaire Tested: **ISS-SA1A-730-U-SL2**

Issue Date: 12/9/2020

Test Information

Test Method: LM-79-08
Report Number: P436964
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2011-074-14)
Test Lab: INNOVATION CENTER
Issue Date: 12/9/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: ISS-SA1A-730-U-SL2
Description: IMPACT ELITE LED QUARTER SPHERE LUMINAIRE
(1) 70 CRI, 3000K, 350mA LIGHTSQUARE WITH 16 LEDS AND TYPE II SPILL LIGHT
ELIMINATOR OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2516 lumens
Efficiency: N/A
Efficacy: 125.2 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

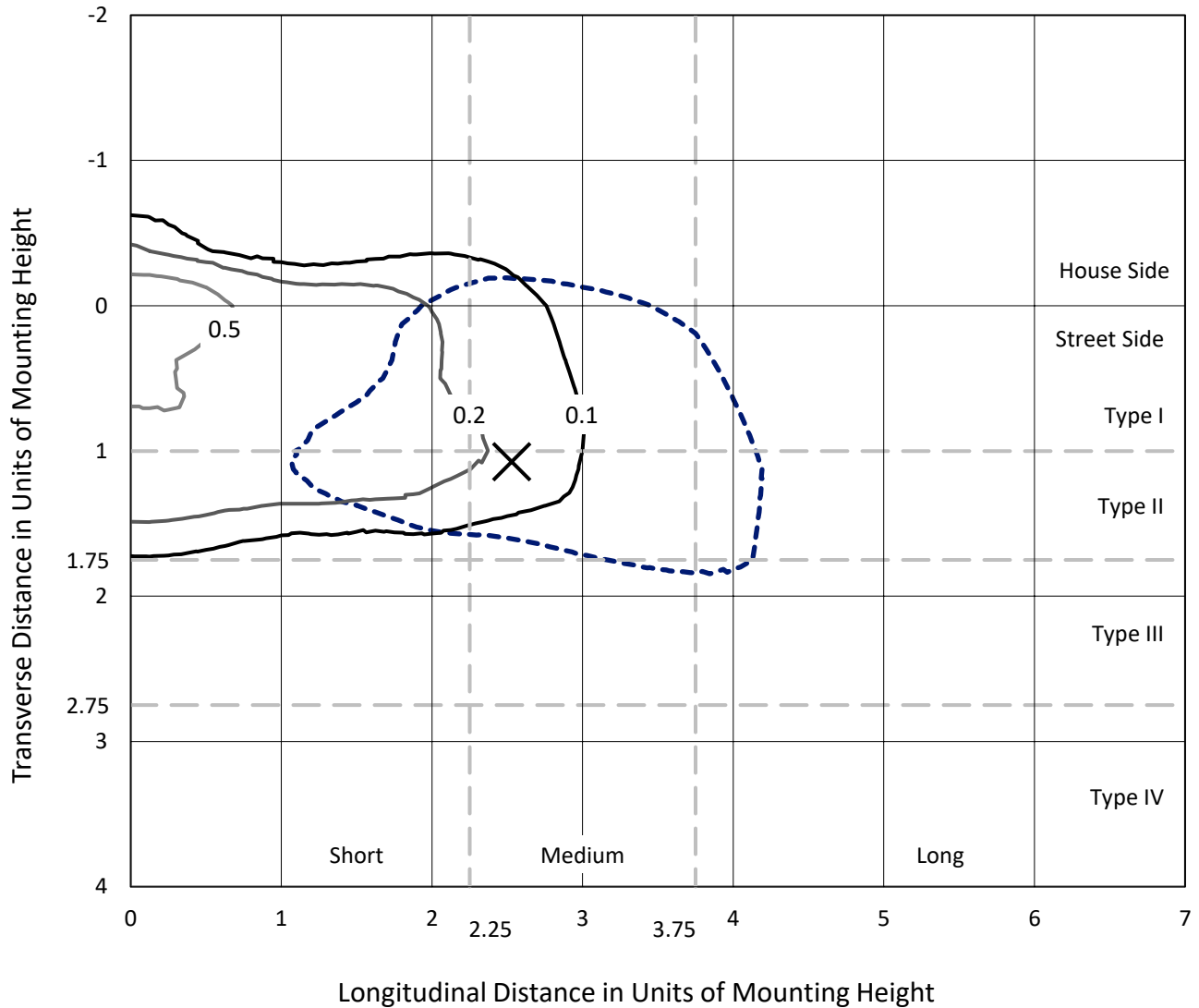
Input Watts (W): 20.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

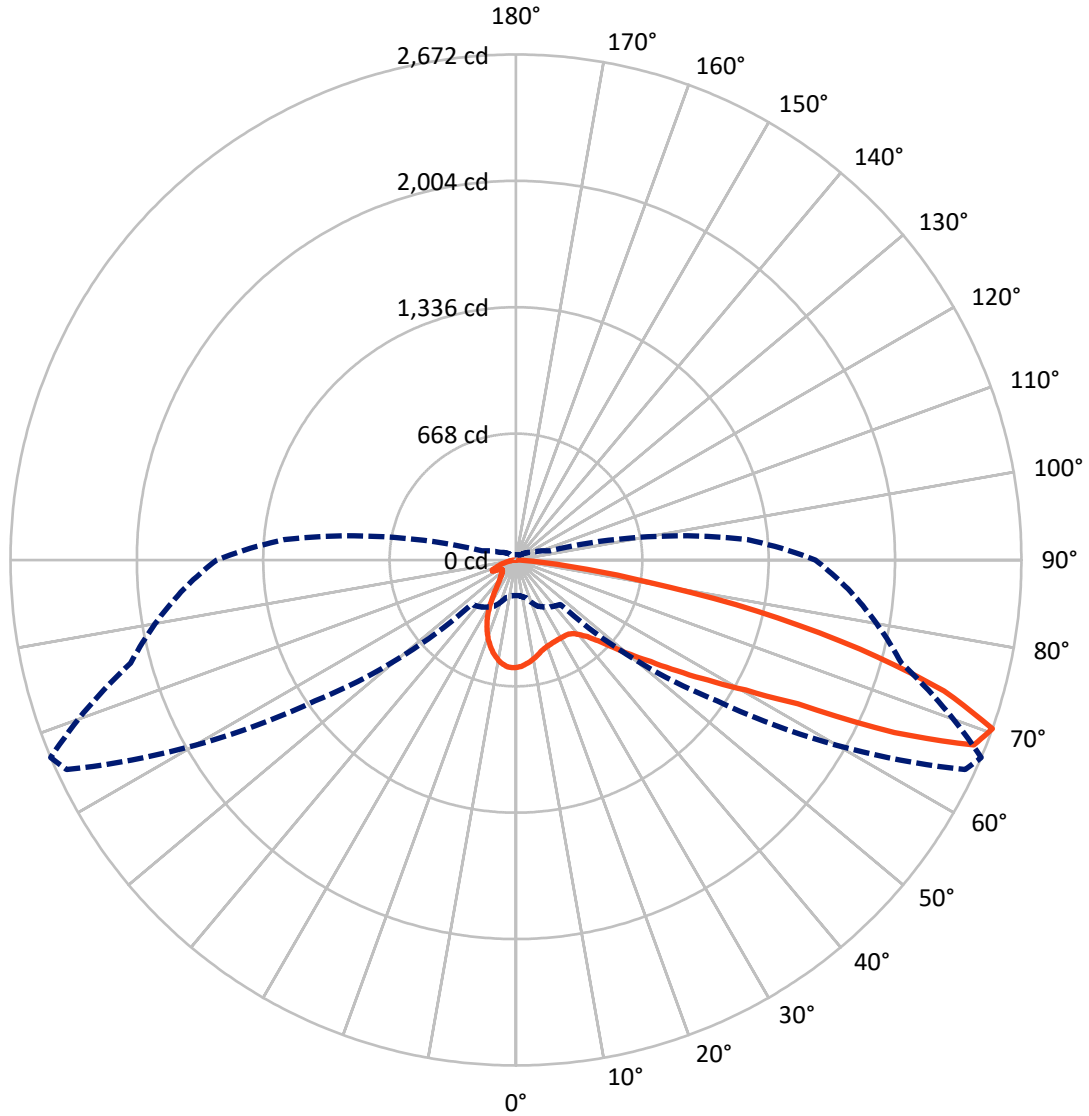
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 0.9 fc
 Type III - Medium - N/A

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CATALOG NUMBER: ISS-SA1A-730-U-SL2

Luminous Intensity Polar Plot



— Vertical Plane Through 67-Deg Lateral - - - Horizontal Cone Through 70-Deg Vertical

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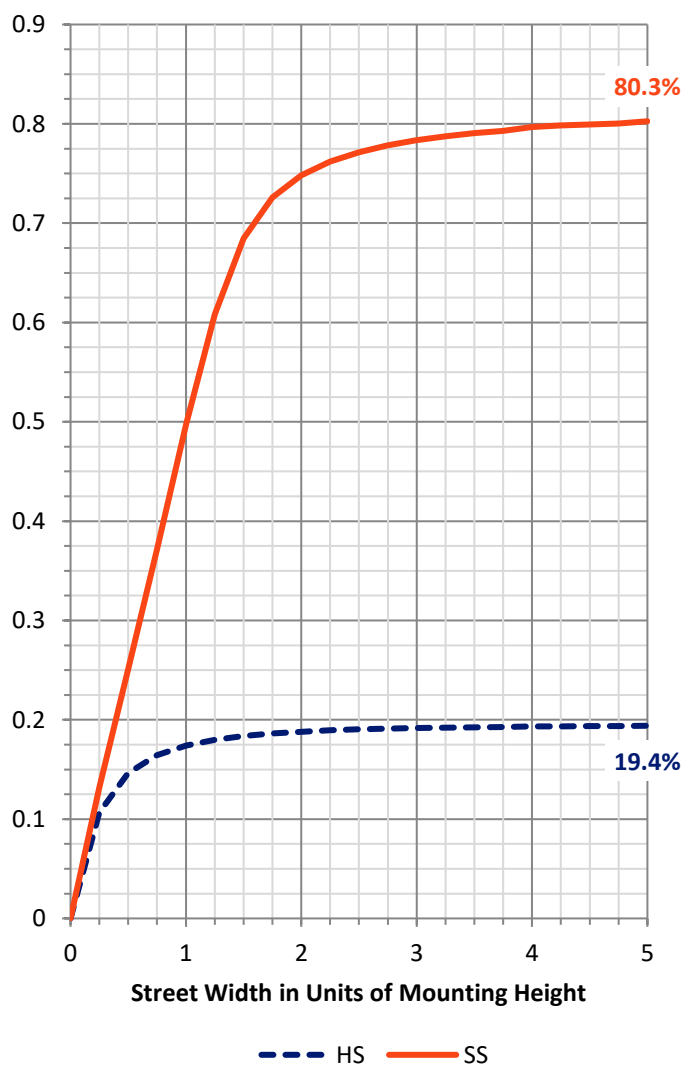
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 492.8 | 0.0 | 492.8 |
| | % Fixture | 19.6 | 0.0 | 19.6 |
| Street Side | Lumens | 2023.2 | 0.0 | 2023.2 |
| | % Fixture | 80.4 | 0.0 | 80.4 |
| Total | Lumens | 2516.0 | 0.0 | 2516.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 49.9 | 2.0 |
| 10°-20° | 120.7 | 4.8 |
| 20°-30° | 166.4 | 6.6 |
| 30°-40° | 224.8 | 8.9 |
| 40°-50° | 333.5 | 13.3 |
| 50°-60° | 513.4 | 20.4 |
| 60°-70° | 634.7 | 25.2 |
| 70°-80° | 425.2 | 16.9 |
| 80°-90° | 47.4 | 1.9 |
| 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° | 2516.0 | 100.0 |
| 0°-180° | 2516.0 | 100.0 |

Coefficient of Utilization

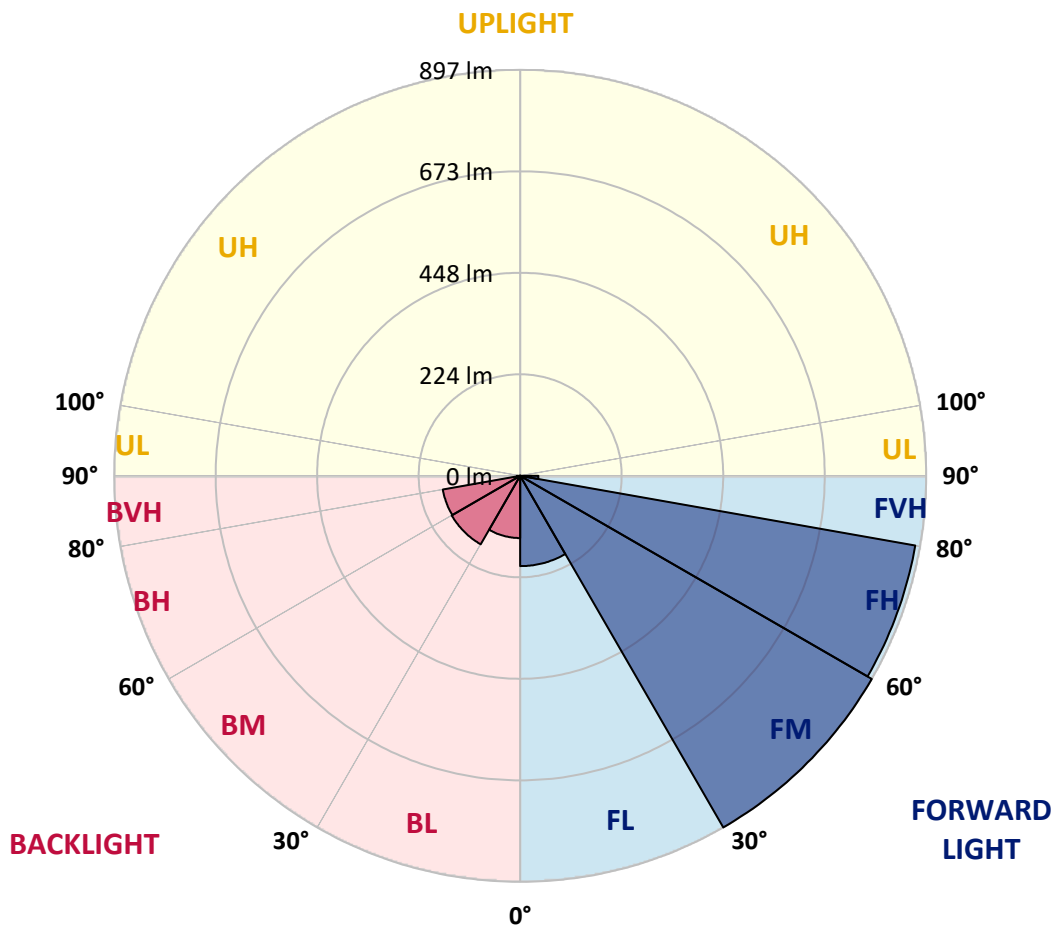


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 CATALOG NUMBER: ISS-SA1A-730-U-SL2

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 199.5 | 7.9 | | | |
| FM (30°-60°) | 897.0 | 35.7 | | | |
| FH (60°-80°) | 886.4 | 35.2 | | | G1/1800 |
| FVH (80°-90°) | 40.3 | 1.6 | | | G1/100 |
| BL (0°-30°) | 137.5 | 5.5 | B1/500 | | |
| BM (30°-60°) | 174.7 | 6.9 | B0/220 | | |
| BH (60°-80°) | 173.5 | 6.9 | B1/500 | | G1/500 |
| BVH (80°-90°) | 7.0 | 0.3 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G1
 Type III Medium





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 67° | 75° | 85° |
|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 568.1 | 568.1 | 568.1 | 568.1 | 568.1 | 568.1 | 568.1 | 568.1 | 568.1 | 568.1 | 568.1 |
| 2.5° | 537.2 | 540.8 | 541.7 | 544.5 | 548.1 | 551.7 | 556.3 | 561.8 | 562.7 | 565.4 | 570.9 |
| 5° | 500.8 | 502.6 | 504.4 | 509.9 | 516.2 | 528.1 | 539.9 | 550.8 | 552.7 | 561.8 | 571.8 |
| 7.5° | 467.1 | 471.6 | 472.5 | 477.1 | 487.1 | 501.7 | 518.1 | 537.2 | 542.6 | 555.4 | 570.9 |
| 10° | 442.5 | 445.2 | 447.0 | 455.2 | 463.4 | 479.8 | 499.8 | 523.5 | 529.0 | 548.1 | 570.0 |
| 12.5° | 422.5 | 427.0 | 429.7 | 435.2 | 448.0 | 462.5 | 482.5 | 508.0 | 515.3 | 539.0 | 566.3 |
| 15° | 411.5 | 415.2 | 416.1 | 422.5 | 432.5 | 447.0 | 466.2 | 495.3 | 500.8 | 529.9 | 566.3 |
| 17.5° | 408.8 | 409.7 | 410.6 | 414.3 | 422.5 | 434.3 | 454.3 | 484.4 | 490.7 | 526.3 | 566.3 |
| 20° | 414.3 | 414.3 | 414.3 | 412.4 | 418.8 | 427.9 | 448.0 | 475.3 | 484.4 | 522.6 | 569.0 |
| 22.5° | 427.0 | 427.9 | 425.2 | 420.6 | 417.9 | 424.3 | 441.6 | 472.5 | 480.7 | 521.7 | 574.5 |
| 25° | 445.2 | 446.1 | 444.3 | 437.9 | 425.2 | 424.3 | 438.8 | 469.8 | 477.1 | 520.8 | 573.6 |
| 27.5° | 469.8 | 475.3 | 469.8 | 462.5 | 446.1 | 431.6 | 441.6 | 468.0 | 476.2 | 520.8 | 575.4 |
| 30° | 504.4 | 508.0 | 505.3 | 493.5 | 472.5 | 447.0 | 445.2 | 469.8 | 476.2 | 519.9 | 574.5 |
| 32.5° | 539.0 | 539.9 | 542.6 | 534.4 | 509.0 | 469.8 | 455.2 | 471.6 | 477.1 | 519.0 | 571.8 |
| 35° | 565.4 | 570.9 | 582.7 | 583.6 | 553.6 | 502.6 | 476.2 | 478.9 | 480.7 | 521.7 | 569.0 |
| 37.5° | 599.1 | 600.9 | 620.0 | 634.6 | 608.2 | 548.1 | 505.3 | 492.6 | 493.5 | 530.8 | 573.6 |
| 40° | 630.0 | 637.3 | 663.7 | 681.9 | 672.8 | 609.1 | 545.4 | 517.1 | 519.0 | 547.2 | 584.5 |
| 42.5° | 676.5 | 681.9 | 709.3 | 734.7 | 737.5 | 678.3 | 600.9 | 559.0 | 554.5 | 579.1 | 608.2 |
| 45° | 717.5 | 723.8 | 758.4 | 795.8 | 808.5 | 756.6 | 670.1 | 616.4 | 609.1 | 632.8 | 651.9 |
| 47.5° | 774.8 | 785.7 | 813.0 | 855.8 | 898.6 | 852.2 | 758.4 | 694.7 | 688.3 | 704.7 | 710.2 |
| 50° | 829.4 | 835.8 | 858.6 | 910.5 | 986.0 | 972.4 | 866.8 | 796.7 | 786.6 | 789.4 | 802.1 |
| 52.5° | 837.6 | 840.4 | 864.0 | 918.7 | 1060.7 | 1119.0 | 999.7 | 911.4 | 893.2 | 895.9 | 911.4 |
| 55° | 775.7 | 786.6 | 803.9 | 880.4 | 1066.2 | 1281.9 | 1186.3 | 1062.5 | 1034.3 | 1024.3 | 1037.0 |
| 57.5° | 647.3 | 660.1 | 684.7 | 763.9 | 1003.3 | 1370.3 | 1492.3 | 1242.8 | 1199.1 | 1152.7 | 1168.1 |
| 60° | 477.1 | 490.7 | 506.2 | 583.6 | 844.0 | 1383.9 | 1796.4 | 1461.3 | 1396.7 | 1281.0 | 1289.2 |
| 62.5° | 366.0 | 366.0 | 379.7 | 411.5 | 564.5 | 1284.7 | 1974.8 | 1831.0 | 1672.5 | 1437.6 | 1427.6 |
| 65° | 295.9 | 299.5 | 313.2 | 343.2 | 356.9 | 912.3 | 2045.8 | 2368.1 | 2199.7 | 1625.2 | 1573.3 |
| 67.5° | 244.9 | 245.8 | 261.3 | 308.6 | 312.3 | 501.7 | 1855.5 | 2650.4 | 2610.3 | 1860.1 | 1728.1 |
| 70° | 187.6 | 188.5 | 206.7 | 268.6 | 304.1 | 332.3 | 1298.3 | 2621.2 | 2672.2 | 2109.6 | 1761.8 |
| 72.5° | 124.7 | 130.2 | 152.0 | 213.0 | 303.2 | 313.2 | 704.7 | 2292.6 | 2366.3 | 2207.0 | 1648.9 |
| 75° | 77.4 | 78.3 | 101.1 | 147.5 | 278.6 | 312.3 | 414.3 | 1786.3 | 1877.4 | 1831.0 | 1430.3 |
| 77.5° | 47.3 | 49.2 | 60.1 | 96.5 | 215.8 | 313.2 | 295.0 | 1229.1 | 1304.7 | 1201.8 | 843.1 |
| 80° | 29.1 | 29.1 | 34.6 | 58.3 | 140.2 | 280.4 | 254.0 | 714.7 | 707.4 | 444.3 | 239.5 |
| 82.5° | 10.9 | 11.8 | 18.2 | 31.9 | 71.0 | 217.6 | 223.1 | 323.2 | 297.7 | 131.1 | 85.6 |
| 85° | 1.8 | 1.8 | 3.6 | 10.0 | 19.1 | 90.1 | 123.8 | 113.8 | 95.6 | 40.1 | 35.5 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.9 | 0.9 | 1.8 | 2.7 | 2.7 | 2.7 | 2.7 | 3.6 |
| 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° | 568.1 | 568.1 | 568.1 | 568.1 | 568.1 | 568.1 | 568.1 | 568.1 | 568.1 | 568.1 | 568.1 |
| 2.5° | 570.9 | 572.7 | 571.8 | 569.0 | 566.3 | 564.5 | 559.9 | 557.2 | 558.1 | 558.1 | 559.0 |
| 5° | 572.7 | 575.4 | 570.9 | 565.4 | 555.4 | 544.5 | 534.4 | 529.0 | 521.7 | 524.4 | 522.6 |
| 7.5° | 575.4 | 577.2 | 569.0 | 552.7 | 535.4 | 517.1 | 499.8 | 484.4 | 472.5 | 467.1 | 470.7 |
| 10° | 573.6 | 576.3 | 560.8 | 536.3 | 509.9 | 480.7 | 454.3 | 428.8 | 412.4 | 401.5 | 404.2 |
| 12.5° | 572.7 | 570.0 | 549.0 | 512.6 | 476.2 | 436.1 | 396.1 | 365.1 | 337.8 | 326.9 | 328.7 |
| 15° | 569.0 | 567.2 | 534.4 | 488.0 | 437.9 | 381.5 | 328.7 | 288.6 | 255.8 | 244.9 | 248.6 |
| 17.5° | 570.9 | 565.4 | 517.1 | 458.0 | 389.7 | 320.5 | 255.8 | 216.7 | 200.3 | 196.7 | 195.8 |
| 20° | 569.0 | 559.0 | 499.8 | 425.2 | 338.7 | 248.6 | 190.3 | 169.3 | 169.3 | 174.8 | 175.7 |
| 22.5° | 570.9 | 553.6 | 480.7 | 387.9 | 280.4 | 186.6 | 148.4 | 142.9 | 151.1 | 163.0 | 163.0 |
| 25° | 570.9 | 547.2 | 459.8 | 346.0 | 219.4 | 142.0 | 126.6 | 126.6 | 137.5 | 148.4 | 147.5 |
| 27.5° | 567.2 | 534.4 | 436.1 | 301.4 | 163.0 | 117.5 | 111.1 | 113.8 | 121.1 | 130.2 | 129.3 |
| 30° | 558.1 | 521.7 | 407.0 | 249.5 | 123.8 | 103.8 | 102.9 | 103.8 | 107.4 | 112.9 | 112.0 |
| 32.5° | 549.9 | 507.1 | 378.8 | 193.9 | 104.7 | 96.5 | 95.6 | 96.5 | 97.4 | 99.2 | 99.2 |
| 35° | 544.5 | 494.4 | 345.1 | 149.3 | 94.7 | 92.0 | 90.1 | 90.1 | 88.3 | 89.2 | 89.2 |
| 37.5° | 538.1 | 482.5 | 310.5 | 116.5 | 89.2 | 87.4 | 85.6 | 82.9 | 82.9 | 81.0 | 81.0 |
| 40° | 538.1 | 473.4 | 275.0 | 98.3 | 85.6 | 84.7 | 81.0 | 77.4 | 75.6 | 75.6 | 75.6 |
| 42.5° | 552.7 | 473.4 | 242.2 | 90.1 | 81.9 | 81.0 | 76.5 | 72.8 | 71.0 | 71.0 | 71.0 |
| 45° | 577.2 | 478.9 | 208.5 | 84.7 | 79.2 | 77.4 | 71.9 | 68.3 | 66.5 | 66.5 | 65.6 |
| 47.5° | 620.0 | 501.7 | 178.5 | 81.9 | 76.5 | 73.7 | 67.4 | 63.7 | 61.9 | 61.9 | 61.9 |
| 50° | 692.0 | 547.2 | 153.9 | 79.2 | 73.7 | 69.2 | 63.7 | 60.1 | 58.3 | 58.3 | 57.4 |
| 52.5° | 791.2 | 615.5 | 142.0 | 77.4 | 70.1 | 64.6 | 60.1 | 56.4 | 54.6 | 53.7 | 53.7 |
| 55° | 910.5 | 718.4 | 140.2 | 76.5 | 66.5 | 61.0 | 56.4 | 52.8 | 51.0 | 50.1 | 50.1 |
| 57.5° | 1040.7 | 831.3 | 153.0 | 74.7 | 62.8 | 56.4 | 52.8 | 49.2 | 47.3 | 46.4 | 46.4 |
| 60° | 1166.3 | 955.1 | 193.9 | 72.8 | 60.1 | 52.8 | 48.3 | 45.5 | 43.7 | 42.8 | 42.8 |
| 62.5° | 1312.0 | 1085.3 | 284.1 | 73.7 | 58.3 | 49.2 | 44.6 | 41.9 | 41.0 | 40.1 | 40.1 |
| 65° | 1472.2 | 1234.6 | 363.3 | 81.0 | 59.2 | 45.5 | 41.0 | 39.2 | 37.3 | 36.4 | 36.4 |
| 67.5° | 1614.3 | 1331.1 | 303.2 | 93.8 | 64.6 | 42.8 | 36.4 | 35.5 | 33.7 | 32.8 | 33.7 |
| 70° | 1582.4 | 1229.1 | 186.6 | 94.7 | 65.6 | 41.0 | 32.8 | 31.0 | 29.1 | 29.1 | 29.1 |
| 72.5° | 1443.1 | 1084.4 | 130.2 | 81.9 | 58.3 | 36.4 | 28.2 | 26.4 | 25.5 | 25.5 | 25.5 |
| 75° | 1214.6 | 894.1 | 103.8 | 66.5 | 45.5 | 30.0 | 23.7 | 22.8 | 21.9 | 20.9 | 20.9 |
| 77.5° | 664.6 | 486.2 | 77.4 | 51.0 | 33.7 | 22.8 | 20.0 | 18.2 | 17.3 | 17.3 | 17.3 |
| 80° | 194.8 | 166.6 | 48.3 | 36.4 | 21.9 | 16.4 | 15.5 | 13.7 | 12.7 | 12.7 | 12.7 |
| 82.5° | 81.9 | 69.2 | 29.1 | 20.0 | 14.6 | 10.9 | 10.0 | 9.1 | 8.2 | 7.3 | 8.2 |
| 85° | 31.9 | 33.7 | 18.2 | 11.8 | 8.2 | 5.5 | 4.6 | 3.6 | 3.6 | 2.7 | 3.6 |
| 87.5° | 3.6 | 4.6 | 3.6 | 2.7 | 1.8 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 |
| 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

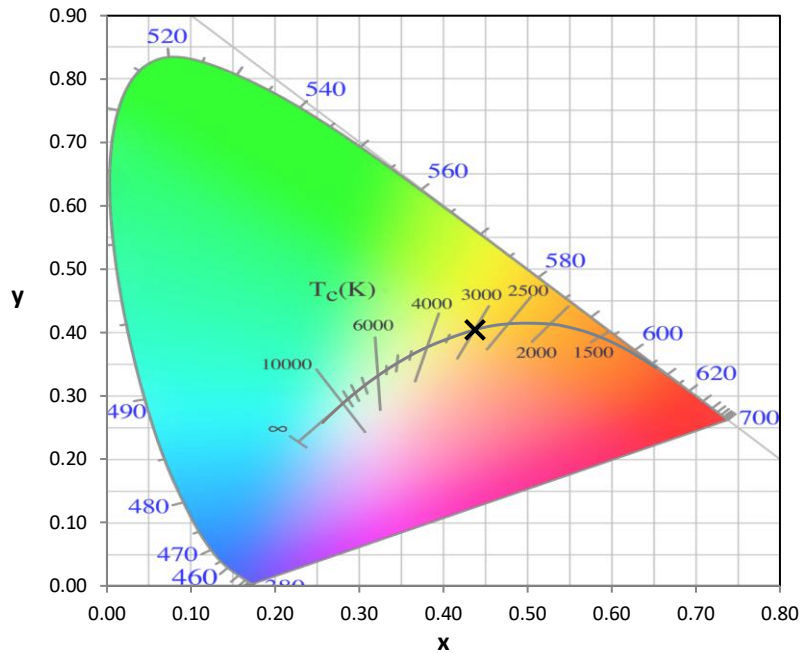
Stabilization Time: 53M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.0./44%
 Sphere Temperature (°C): 25.7

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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 | | | |

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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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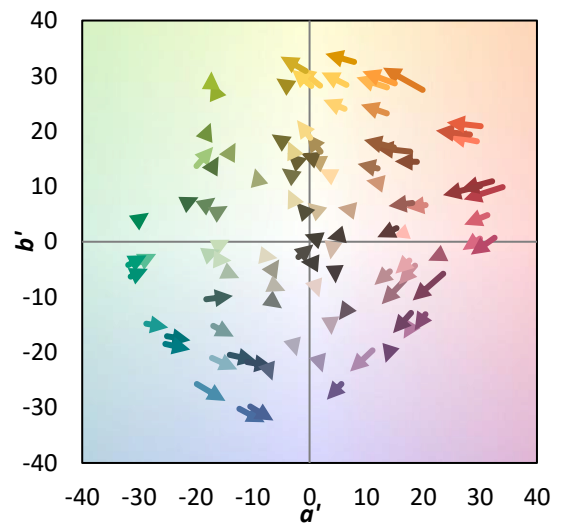
TM-30-18

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 ($R_{f,i}$)

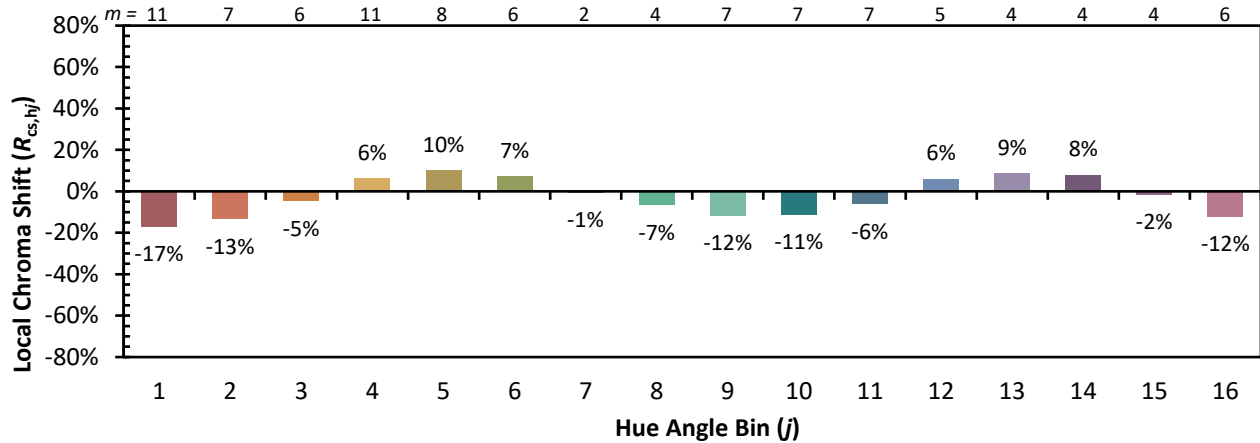
| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 67 | CES51 = 87 | CES76 = 63 |
| CES02 = 63 | CES27 = 88 | CES52 = 86 | CES77 = 80 |
| CES03 = 31 | CES28 = 87 | CES53 = 78 | CES78 = 67 |
| CES04 = 71 | CES29 = 66 | CES54 = 84 | CES79 = 87 |
| CES05 = 49 | CES30 = 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)