

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: P438514

Luminaire Tested: **IST-SA1D-730-U-T3-HSS**

Issue Date: 12/10/2020

Test Information

Test Method: LM-79-08
Report Number: P438514
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2011-074-9)
Test Lab: INNOVATION CENTER
Issue Date: 12/10/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: MCGRAW-EDISON
Catalog Number: IST-SA1D-730-U-T3-HSS
Description: IMPACT ELITE LED TRAPEZOID LUMINAIRE
(1) 70 CRI, 3000K, 800mA LIGHTSQUARE WITH 16 LEDS AND TYPE III OPTICS
WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3673 lumens
Efficiency: N/A
Efficacy: 81.3 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type III - Short
BUG Rating: B1 - U0 - G1

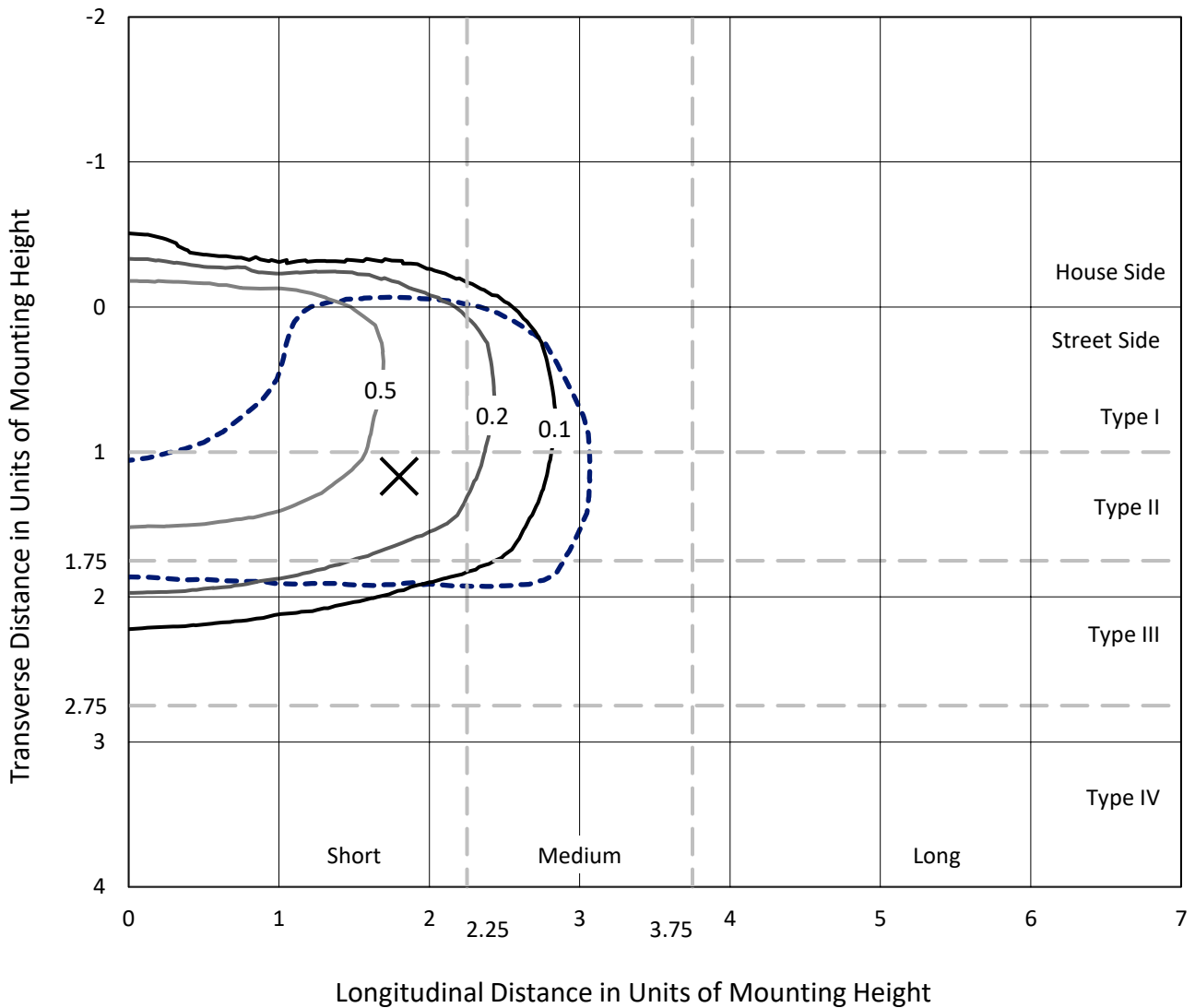
Input Watts (W): 45.2
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P438514
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Iso-Footcandle Lines of Horizontal Illumination

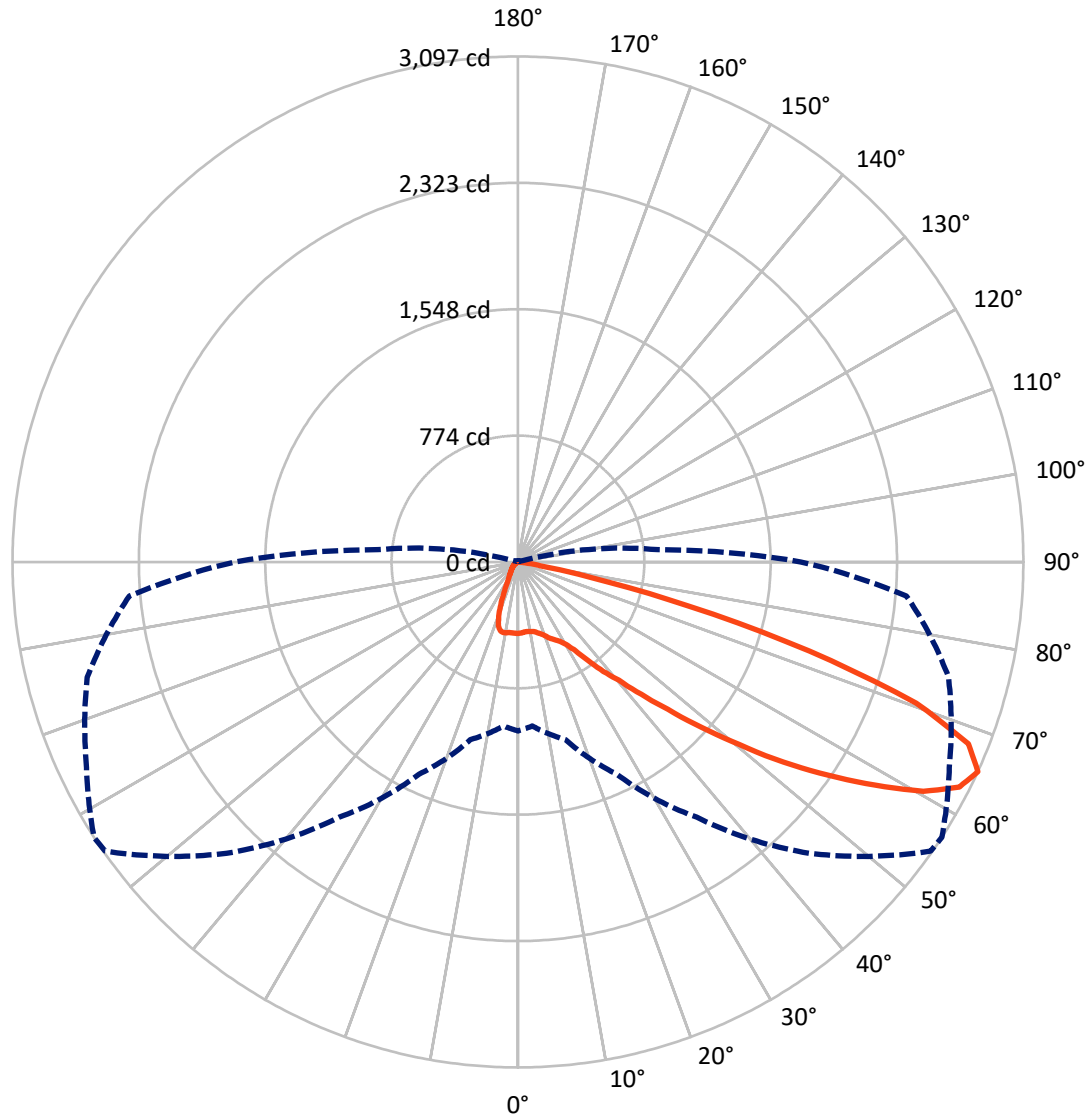
✕ Max cd
 - - - 1/2 Max cd



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

REPORT NUMBER: P438514
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Luminous Intensity Polar Plot



— Vertical Plane Through 57-Deg Lateral - - - Horizontal Cone Through 65-Deg Vertical

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CATALOG NUMBER: IST-SA1D-730-U-T3-HSS

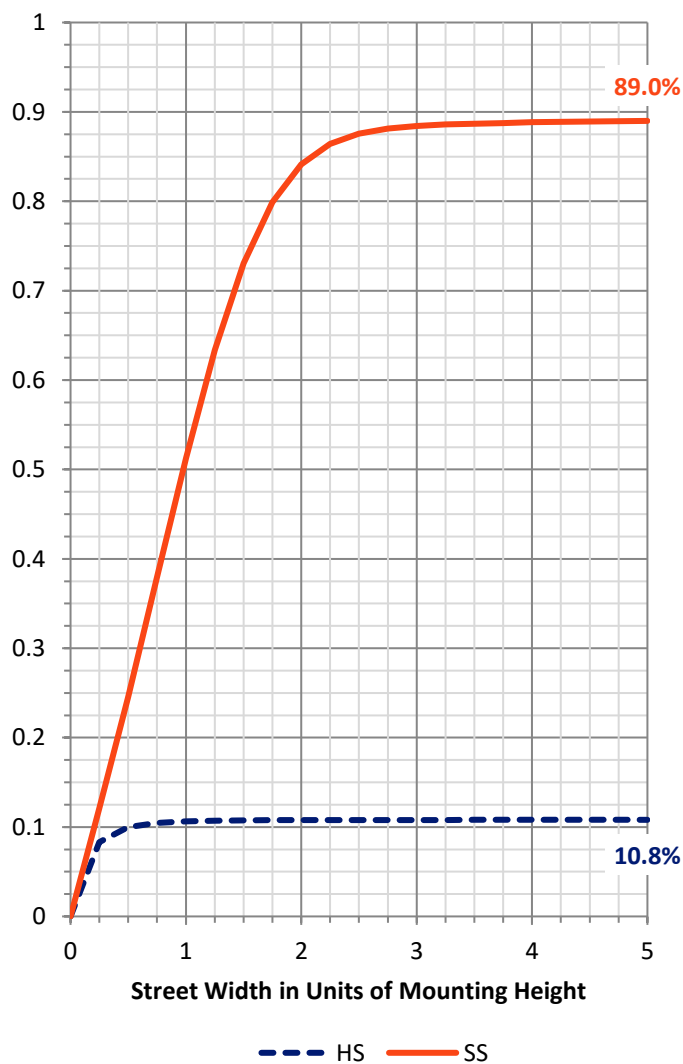
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 400.6 | 0.0 | 400.6 |
| | % Fixture | 10.9 | 0.0 | 10.9 |
| Street Side | Lumens | 3272.4 | 0.0 | 3272.4 |
| | % Fixture | 89.1 | 0.0 | 89.1 |
| Total | Lumens | 3673.0 | 0.0 | 3673.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 40.6 | 1.1 |
| 10°-20° | 109.9 | 3.0 |
| 20°-30° | 189.8 | 5.2 |
| 30°-40° | 336.2 | 9.2 |
| 40°-50° | 609.8 | 16.6 |
| 50°-60° | 1027.2 | 28.0 |
| 60°-70° | 1056.2 | 28.8 |
| 70°-80° | 292.7 | 8.0 |
| 80°-90° | 10.4 | 0.3 |
| 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° | 3673.0 | 100.0 |
| 0°-180° | 3673.0 | 100.0 |

Coefficient of Utilization



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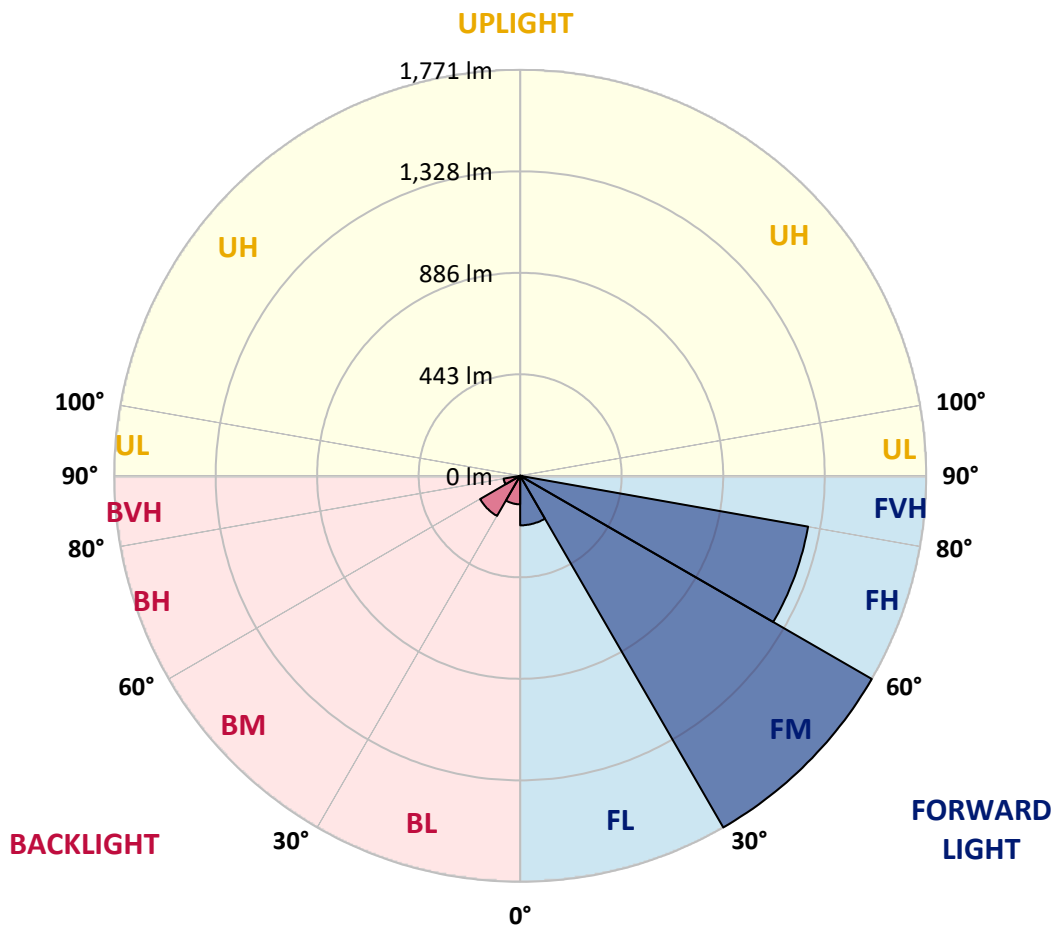
CATALOG NUMBER: IST-SA1D-730-U-T3-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 216.0 | 5.9 | | | |
| FM (30°-60°) | 1771.3 | 48.2 | | | |
| FH (60°-80°) | 1275.5 | 34.7 | | | G1/1800 |
| FVH (80°-90°) | 9.6 | 0.3 | | | G0/10 |
| BL (0°-30°) | 124.4 | 3.4 | B1/500 | | |
| BM (30°-60°) | 202.0 | 5.5 | B0/220 | | |
| BH (60°-80°) | 73.5 | 2.0 | B0/110 | | G0/110 |
| BVH (80°-90°) | 0.8 | 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-G1

Type III Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 57° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 437.0 | 437.0 | 437.0 | 437.0 | 437.0 | 437.0 | 437.0 | 437.0 | 437.0 | 437.0 | 437.0 |
| 2.5° | 424.5 | 424.5 | 428.1 | 429.9 | 429.9 | 431.7 | 433.5 | 435.2 | 435.2 | 435.2 | 438.8 |
| 5° | 403.0 | 401.2 | 404.8 | 408.4 | 413.8 | 420.9 | 426.3 | 429.9 | 435.2 | 440.6 | 442.4 |
| 7.5° | 383.3 | 383.3 | 386.9 | 392.3 | 403.0 | 413.8 | 424.5 | 429.9 | 438.8 | 449.6 | 453.2 |
| 10° | 377.9 | 376.1 | 381.5 | 386.9 | 397.6 | 410.2 | 426.3 | 433.5 | 446.0 | 460.3 | 465.7 |
| 12.5° | 374.3 | 374.3 | 376.1 | 385.1 | 395.8 | 412.0 | 431.7 | 437.0 | 456.7 | 472.9 | 485.4 |
| 15° | 372.6 | 372.6 | 376.1 | 383.3 | 395.8 | 413.8 | 440.6 | 449.6 | 472.9 | 496.1 | 506.9 |
| 17.5° | 386.9 | 385.1 | 383.3 | 386.9 | 399.4 | 419.1 | 454.9 | 463.9 | 492.6 | 521.2 | 533.8 |
| 20° | 429.9 | 428.1 | 422.7 | 410.2 | 410.2 | 433.5 | 472.9 | 483.6 | 521.2 | 549.9 | 557.0 |
| 22.5° | 510.5 | 515.8 | 496.1 | 463.9 | 440.6 | 451.4 | 496.1 | 508.7 | 551.7 | 582.1 | 582.1 |
| 25° | 626.9 | 619.7 | 601.8 | 548.1 | 501.5 | 480.0 | 515.8 | 528.4 | 580.3 | 616.1 | 609.0 |
| 27.5° | 748.7 | 750.5 | 725.4 | 664.5 | 589.3 | 532.0 | 537.3 | 551.7 | 610.8 | 652.0 | 635.9 |
| 30° | 845.4 | 838.2 | 825.7 | 775.6 | 693.2 | 614.4 | 578.5 | 587.5 | 644.8 | 691.4 | 677.0 |
| 32.5° | 931.4 | 927.8 | 911.7 | 868.7 | 795.3 | 711.1 | 646.6 | 648.4 | 693.2 | 750.5 | 732.6 |
| 35° | 1008.4 | 1012.0 | 1004.8 | 956.5 | 890.2 | 811.4 | 737.9 | 743.3 | 777.3 | 836.5 | 800.6 |
| 37.5° | 1105.1 | 1105.1 | 1092.6 | 1047.8 | 997.7 | 918.8 | 849.0 | 850.8 | 868.7 | 917.1 | 872.3 |
| 40° | 1189.3 | 1192.9 | 1191.1 | 1157.1 | 1108.7 | 1037.1 | 952.9 | 952.9 | 958.3 | 1015.6 | 992.3 |
| 42.5° | 1303.9 | 1309.3 | 1307.5 | 1275.3 | 1237.7 | 1185.7 | 1114.1 | 1108.7 | 1105.1 | 1176.8 | 1151.7 |
| 45° | 1450.8 | 1463.4 | 1468.7 | 1429.3 | 1395.3 | 1364.8 | 1309.3 | 1287.8 | 1296.8 | 1363.0 | 1343.3 |
| 47.5° | 1590.5 | 1604.9 | 1629.9 | 1610.2 | 1594.1 | 1594.1 | 1518.9 | 1515.3 | 1501.0 | 1578.0 | 1524.2 |
| 50° | 1723.1 | 1724.9 | 1760.7 | 1791.1 | 1839.5 | 1830.5 | 1780.4 | 1758.9 | 1737.4 | 1789.3 | 1692.6 |
| 52.5° | 1798.3 | 1819.8 | 1866.4 | 1954.1 | 2059.8 | 2102.8 | 2050.8 | 2038.3 | 1995.3 | 1988.2 | 1855.6 |
| 55° | 1868.1 | 1868.1 | 1941.6 | 2093.8 | 2272.9 | 2364.3 | 2321.3 | 2307.0 | 2221.0 | 2195.9 | 2024.0 |
| 57.5° | 1891.4 | 1884.3 | 1982.8 | 2176.2 | 2444.9 | 2604.3 | 2613.3 | 2581.0 | 2461.0 | 2384.0 | 2195.9 |
| 60° | 1775.0 | 1762.5 | 1866.4 | 2122.5 | 2491.5 | 2778.0 | 2874.8 | 2853.3 | 2668.8 | 2566.7 | 2376.8 |
| 62.5° | 1440.1 | 1456.2 | 1588.7 | 1866.4 | 2326.7 | 2760.1 | 3048.5 | 3036.0 | 2822.8 | 2690.3 | 2448.5 |
| 65° | 1035.3 | 1008.4 | 1126.6 | 1434.7 | 1909.3 | 2523.7 | 3087.9 | 3096.9 | 2917.7 | 2731.5 | 2389.4 |
| 67.5° | 580.3 | 555.2 | 653.8 | 888.4 | 1357.7 | 2070.5 | 2926.7 | 2976.9 | 2849.7 | 2629.4 | 2135.0 |
| 70° | 222.1 | 236.4 | 304.5 | 438.8 | 800.6 | 1429.3 | 2518.3 | 2590.0 | 2498.6 | 2194.1 | 1590.5 |
| 72.5° | 78.8 | 89.6 | 125.4 | 195.2 | 370.8 | 770.2 | 1760.7 | 1868.1 | 1841.3 | 1524.2 | 909.9 |
| 75° | 46.6 | 48.4 | 64.5 | 94.9 | 163.0 | 300.9 | 994.1 | 1083.6 | 1040.6 | 754.1 | 376.1 |
| 77.5° | 32.2 | 32.2 | 41.2 | 57.3 | 93.1 | 120.0 | 388.7 | 440.6 | 453.2 | 272.3 | 111.0 |
| 80° | 19.7 | 21.5 | 28.7 | 37.6 | 53.7 | 55.5 | 120.0 | 141.5 | 132.5 | 96.7 | 39.4 |
| 82.5° | 9.0 | 9.0 | 16.1 | 25.1 | 26.9 | 23.3 | 37.6 | 41.2 | 48.4 | 43.0 | 17.9 |
| 85° | 0.0 | 0.0 | 5.4 | 9.0 | 7.2 | 5.4 | 12.5 | 12.5 | 16.1 | 19.7 | 9.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 3.6 | 1.8 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



REPORT NUMBER: P438514
 CATALOG NUMBER: IST-SA1D-730-U-T3-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 437.0 | 437.0 | 437.0 | 437.0 | 437.0 | 437.0 | 437.0 | 437.0 | 437.0 | 437.0 | 437.0 |
| 2.5° | 438.8 | 440.6 | 438.8 | 437.0 | 437.0 | 435.2 | 435.2 | 435.2 | 435.2 | 435.2 | 435.2 |
| 5° | 442.4 | 444.2 | 442.4 | 438.8 | 435.2 | 431.7 | 428.1 | 428.1 | 428.1 | 428.1 | 431.7 |
| 7.5° | 453.2 | 453.2 | 449.6 | 442.4 | 433.5 | 429.9 | 422.7 | 420.9 | 417.3 | 415.5 | 417.3 |
| 10° | 469.3 | 469.3 | 462.1 | 451.4 | 437.0 | 422.7 | 410.2 | 392.3 | 381.5 | 374.3 | 372.6 |
| 12.5° | 485.4 | 483.6 | 474.6 | 460.3 | 437.0 | 404.8 | 363.6 | 318.8 | 292.0 | 272.3 | 268.7 |
| 15° | 506.9 | 505.1 | 490.8 | 465.7 | 426.3 | 358.2 | 277.6 | 216.7 | 184.5 | 170.2 | 168.4 |
| 17.5° | 530.2 | 526.6 | 506.9 | 469.3 | 392.3 | 270.5 | 182.7 | 141.5 | 129.0 | 125.4 | 125.4 |
| 20° | 555.2 | 549.9 | 519.4 | 463.9 | 324.2 | 184.5 | 127.2 | 118.2 | 116.4 | 114.6 | 114.6 |
| 22.5° | 575.0 | 566.0 | 528.4 | 437.0 | 241.8 | 127.2 | 112.8 | 111.0 | 109.3 | 107.5 | 107.5 |
| 25° | 596.4 | 582.1 | 535.5 | 377.9 | 159.4 | 109.3 | 105.7 | 103.9 | 100.3 | 98.5 | 98.5 |
| 27.5° | 621.5 | 600.0 | 546.3 | 297.3 | 111.0 | 98.5 | 94.9 | 93.1 | 87.8 | 84.2 | 84.2 |
| 30° | 653.8 | 626.9 | 551.7 | 216.7 | 93.1 | 86.0 | 82.4 | 78.8 | 71.6 | 68.1 | 68.1 |
| 32.5° | 705.7 | 682.4 | 540.9 | 145.1 | 84.2 | 77.0 | 71.6 | 64.5 | 57.3 | 53.7 | 51.9 |
| 35° | 772.0 | 739.7 | 503.3 | 102.1 | 75.2 | 68.1 | 59.1 | 50.2 | 44.8 | 43.0 | 43.0 |
| 37.5° | 845.4 | 802.4 | 446.0 | 82.4 | 68.1 | 59.1 | 50.2 | 41.2 | 35.8 | 34.0 | 34.0 |
| 40° | 949.3 | 883.0 | 367.2 | 71.6 | 59.1 | 50.2 | 41.2 | 34.0 | 30.4 | 28.7 | 28.7 |
| 42.5° | 1085.4 | 985.1 | 277.6 | 66.3 | 53.7 | 43.0 | 34.0 | 28.7 | 25.1 | 23.3 | 23.3 |
| 45° | 1237.7 | 1092.6 | 202.4 | 59.1 | 46.6 | 35.8 | 26.9 | 23.3 | 19.7 | 17.9 | 17.9 |
| 47.5° | 1389.9 | 1169.6 | 139.7 | 53.7 | 39.4 | 30.4 | 23.3 | 17.9 | 14.3 | 14.3 | 12.5 |
| 50° | 1522.5 | 1210.8 | 100.3 | 46.6 | 35.8 | 25.1 | 17.9 | 14.3 | 12.5 | 10.7 | 10.7 |
| 52.5° | 1638.9 | 1228.7 | 77.0 | 41.2 | 30.4 | 21.5 | 14.3 | 12.5 | 10.7 | 10.7 | 10.7 |
| 55° | 1737.4 | 1214.4 | 60.9 | 35.8 | 26.9 | 17.9 | 12.5 | 10.7 | 9.0 | 9.0 | 9.0 |
| 57.5° | 1834.1 | 1171.4 | 48.4 | 30.4 | 21.5 | 12.5 | 10.7 | 9.0 | 7.2 | 7.2 | 7.2 |
| 60° | 1884.3 | 1115.9 | 39.4 | 25.1 | 17.9 | 10.7 | 9.0 | 7.2 | 7.2 | 5.4 | 5.4 |
| 62.5° | 1850.2 | 1003.0 | 32.2 | 21.5 | 12.5 | 9.0 | 7.2 | 5.4 | 5.4 | 3.6 | 3.6 |
| 65° | 1735.6 | 859.7 | 25.1 | 16.1 | 9.0 | 7.2 | 5.4 | 5.4 | 3.6 | 1.8 | 1.8 |
| 67.5° | 1463.4 | 673.5 | 19.7 | 12.5 | 7.2 | 5.4 | 3.6 | 3.6 | 1.8 | 0.0 | 0.0 |
| 70° | 1046.0 | 444.2 | 16.1 | 9.0 | 5.4 | 5.4 | 3.6 | 1.8 | 0.0 | 0.0 | 0.0 |
| 72.5° | 603.6 | 214.9 | 12.5 | 5.4 | 3.6 | 3.6 | 1.8 | 1.8 | 0.0 | 0.0 | 0.0 |
| 75° | 225.7 | 75.2 | 10.7 | 5.4 | 3.6 | 1.8 | 1.8 | 1.8 | 0.0 | 0.0 | 0.0 |
| 77.5° | 75.2 | 30.4 | 9.0 | 7.2 | 5.4 | 1.8 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 |
| 80° | 23.3 | 14.3 | 3.6 | 3.6 | 3.6 | 3.6 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 |
| 82.5° | 12.5 | 7.2 | 1.8 | 1.8 | 1.8 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 5.4 | 3.6 | 1.8 | 1.8 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 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

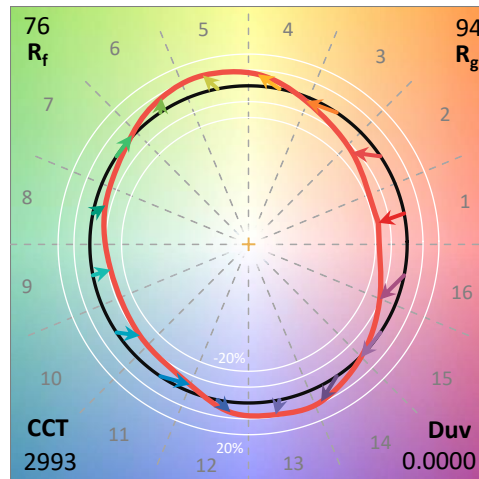
THIS IS A REVISION OF SP1-1908-441-2-R3. TO UPDATE THE CATALOG INFORMATION.TESTED IN SITU. (1) 70 CRI, 3000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

Spectral Parameters

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

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

Rf: 75.7
 Rg: 93.9



Test Conditions

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

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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



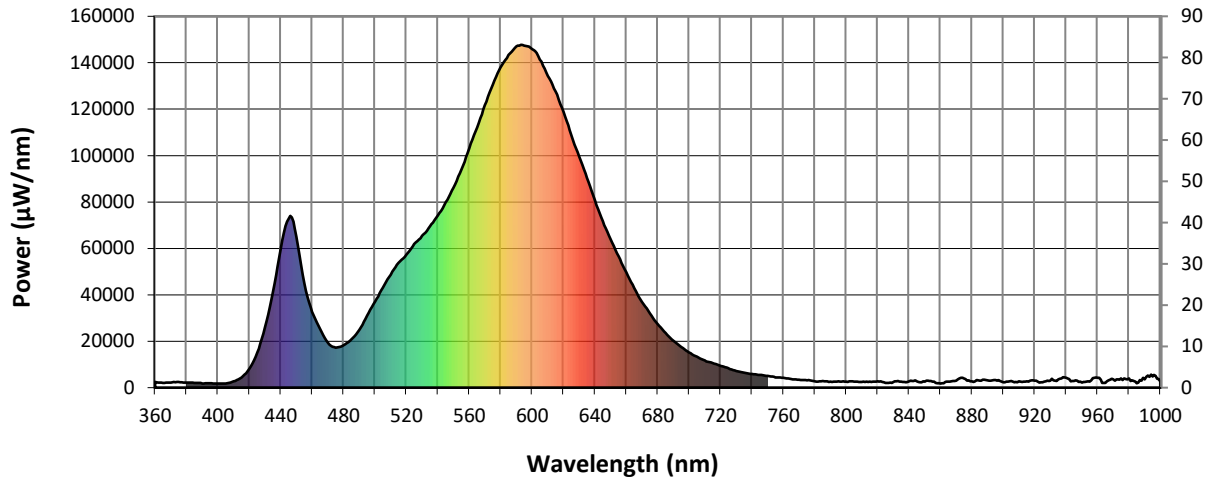
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



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)