

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: P438772

Luminaire Tested: **IST-SA1E-827-U-SL4-HSS**

Issue Date: 12/10/2020

Test Information

Test Method: LM-79-08
Report Number: P438772
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2011-074-19)
Test Lab: INNOVATION CENTER
Issue Date: 12/10/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: IST-SA1E-827-U-SL4-HSS
Description: IMPACT ELITE LED TRAPEZOID LUMINAIRE
(1) 80 CRI, 2700K, 1050mA LIGHTSQUARE WITH 16 LEDS AND TYPE IV SPILL
LIGHT ELIMINATOR OPTICS WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4258 lumens
Efficiency: N/A
Efficacy: 73.2 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B1 - U0 - G2

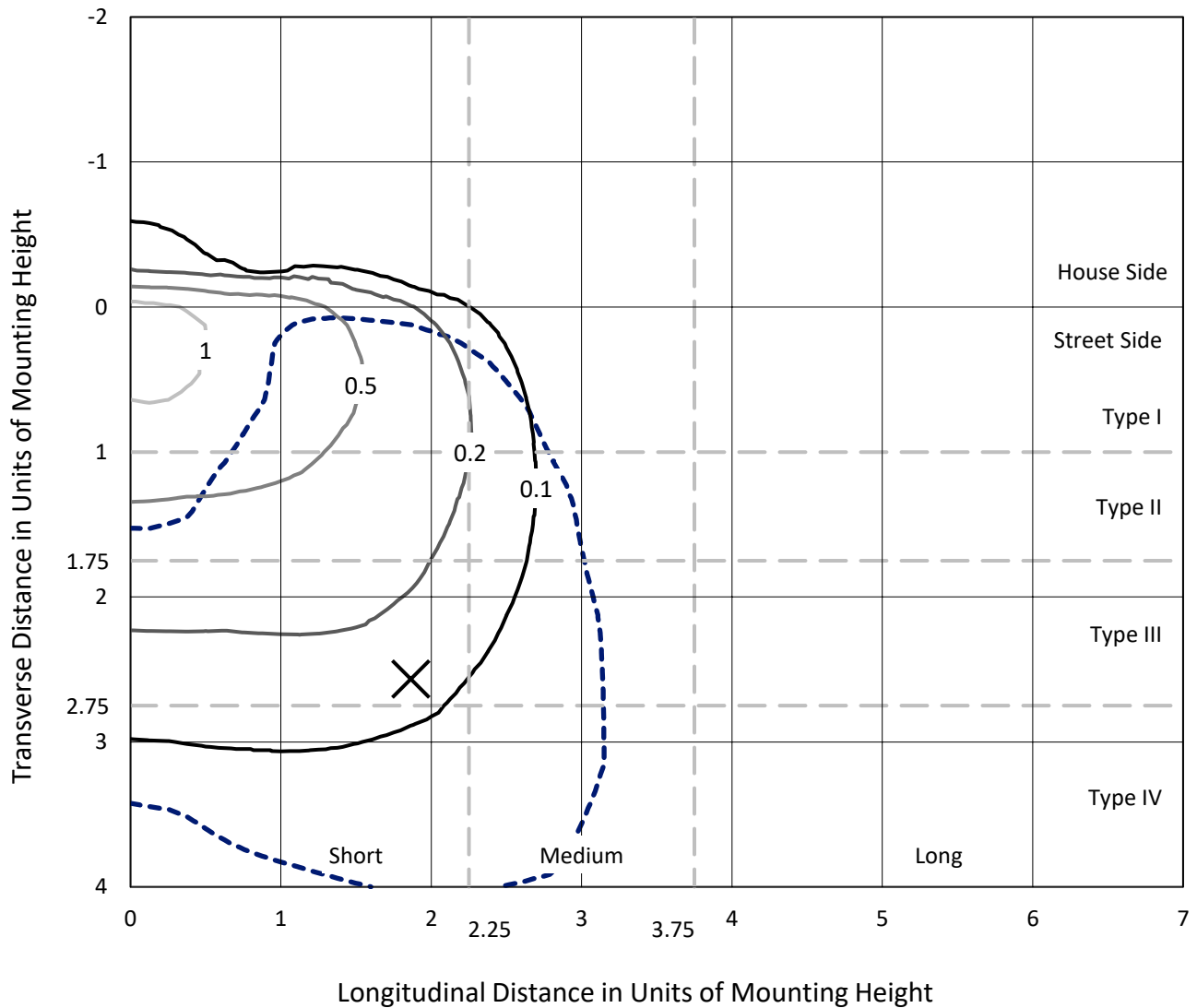
Input Watts (W): 58.2
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

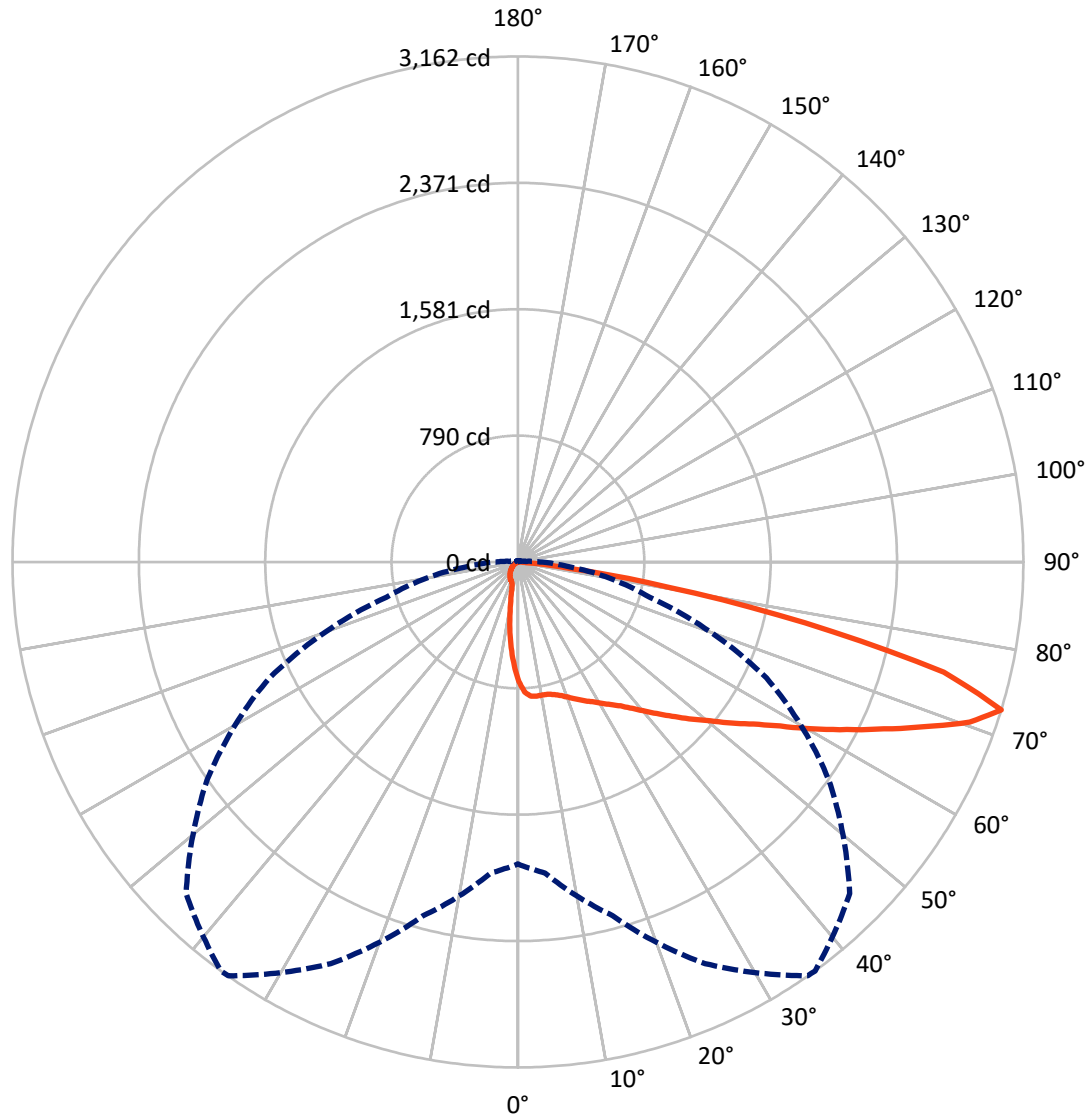
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 1.3 fc
 Type IV - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 36-Deg Lateral - - - Horizontal Cone Through 72.5-Deg Vertical

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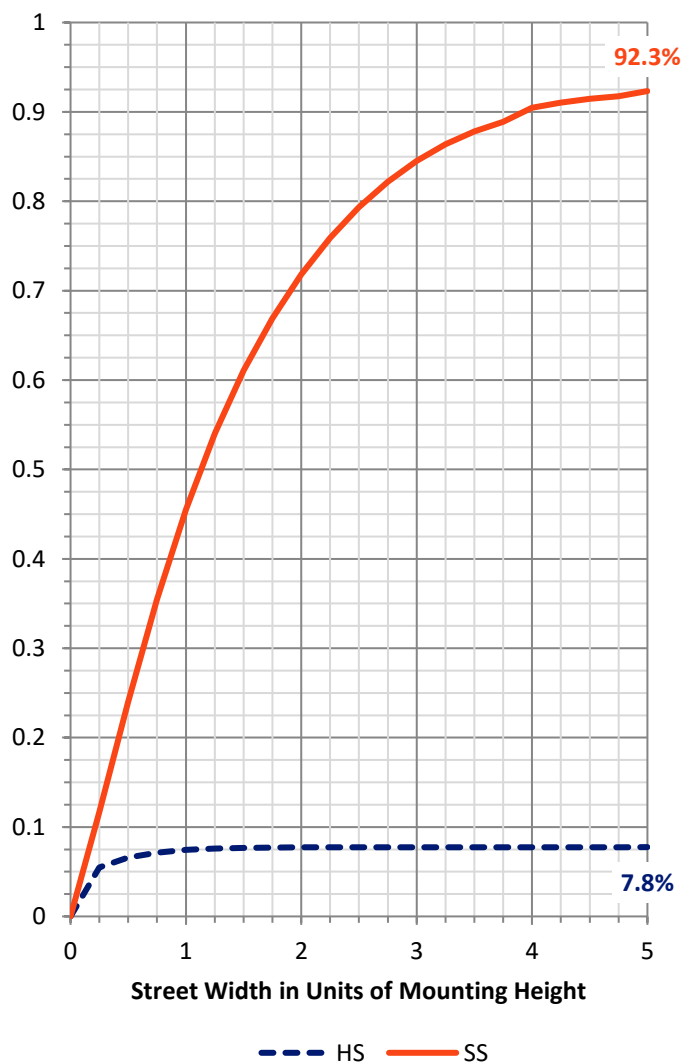
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 332.2 | 0.0 | 332.2 |
| | % Fixture | 7.8 | 0.0 | 7.8 |
| Street Side | Lumens | 3925.8 | 0.0 | 3925.8 |
| | % Fixture | 92.2 | 0.0 | 92.2 |
| Total | Lumens | 4258.0 | 0.0 | 4258.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 63.9 | 1.5 |
| 10°-20° | 160.3 | 3.8 |
| 20°-30° | 261.8 | 6.1 |
| 30°-40° | 398.1 | 9.3 |
| 40°-50° | 608.7 | 14.3 |
| 50°-60° | 865.6 | 20.3 |
| 60°-70° | 1097.6 | 25.8 |
| 70°-80° | 751.6 | 17.7 |
| 80°-90° | 50.4 | 1.2 |
| 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° | 4258.0 | 100.0 |
| 0°-180° | 4258.0 | 100.0 |

Coefficient of Utilization



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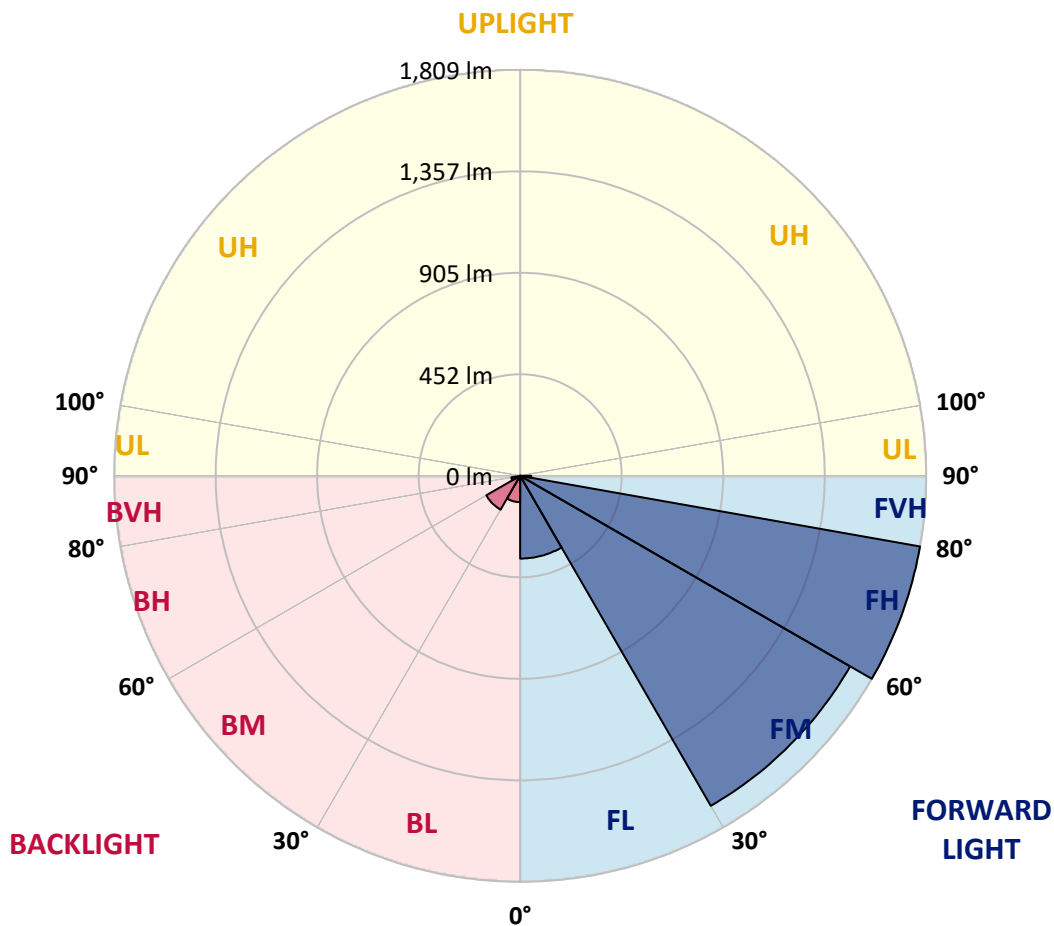
CATALOG NUMBER: IST-SA1E-827-U-SL4-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 368.8 | 8.7 | | | |
| FM (30°-60°) | 1698.2 | 39.9 | | | |
| FH (60°-80°) | 1809.2 | 42.5 | | | G2/5000 |
| FVH (80°-90°) | 49.6 | 1.2 | | | G1/100 |
| BL (0°-30°) | 117.2 | 2.8 | B1/500 | | |
| BM (30°-60°) | 174.2 | 4.1 | B0/220 | | |
| BH (60°-80°) | 40.0 | 0.9 | 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 IV Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 36° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 747.8 | 747.8 | 747.8 | 747.8 | 747.8 | 747.8 | 747.8 | 747.8 | 747.8 | 747.8 | 747.8 |
| 2.5° | 837.7 | 832.1 | 828.4 | 824.6 | 813.4 | 815.2 | 804.0 | 792.7 | 775.9 | 768.4 | 757.1 |
| 5° | 858.3 | 856.5 | 854.6 | 849.0 | 839.6 | 843.3 | 832.1 | 820.9 | 796.5 | 774.0 | 749.6 |
| 7.5° | 854.6 | 858.3 | 856.5 | 852.7 | 845.2 | 847.1 | 837.7 | 826.5 | 805.9 | 775.9 | 742.1 |
| 10° | 847.1 | 849.0 | 849.0 | 847.1 | 845.2 | 845.2 | 837.7 | 828.4 | 809.6 | 783.4 | 740.3 |
| 12.5° | 832.1 | 835.9 | 841.5 | 845.2 | 847.1 | 849.0 | 843.3 | 835.9 | 819.0 | 790.9 | 745.9 |
| 15° | 826.5 | 830.2 | 841.5 | 852.7 | 858.3 | 860.2 | 854.6 | 845.2 | 830.2 | 805.9 | 755.3 |
| 17.5° | 826.5 | 830.2 | 849.0 | 865.8 | 877.1 | 879.0 | 871.5 | 862.1 | 843.3 | 819.0 | 766.5 |
| 20° | 837.7 | 841.5 | 864.0 | 893.9 | 899.6 | 903.3 | 892.1 | 879.0 | 858.3 | 834.0 | 779.6 |
| 22.5° | 856.5 | 862.1 | 890.2 | 918.3 | 929.6 | 931.4 | 918.3 | 893.9 | 875.2 | 850.8 | 790.9 |
| 25° | 888.3 | 901.4 | 927.7 | 957.7 | 959.5 | 961.4 | 940.8 | 916.4 | 893.9 | 869.6 | 804.0 |
| 27.5° | 933.3 | 944.5 | 967.0 | 1000.8 | 989.5 | 989.5 | 972.7 | 940.8 | 918.3 | 895.8 | 826.5 |
| 30° | 991.4 | 998.9 | 1025.1 | 1038.3 | 1023.3 | 1025.1 | 1004.5 | 974.5 | 955.8 | 933.3 | 860.2 |
| 32.5° | 1045.8 | 1051.4 | 1079.5 | 1081.4 | 1064.5 | 1062.6 | 1047.6 | 1012.0 | 997.0 | 989.5 | 907.1 |
| 35° | 1096.4 | 1103.8 | 1126.3 | 1124.5 | 1107.6 | 1105.7 | 1098.2 | 1066.4 | 1066.4 | 1073.9 | 976.4 |
| 37.5° | 1133.8 | 1152.6 | 1180.7 | 1173.2 | 1161.9 | 1161.9 | 1156.3 | 1132.0 | 1150.7 | 1178.8 | 1068.2 |
| 40° | 1182.6 | 1193.8 | 1231.3 | 1225.7 | 1227.5 | 1227.5 | 1229.4 | 1214.4 | 1248.2 | 1295.0 | 1175.1 |
| 42.5° | 1208.8 | 1231.3 | 1276.3 | 1283.8 | 1300.6 | 1300.6 | 1315.6 | 1311.9 | 1375.6 | 1435.6 | 1298.8 |
| 45° | 1250.0 | 1274.4 | 1323.1 | 1351.2 | 1371.8 | 1381.2 | 1407.5 | 1428.1 | 1518.0 | 1593.0 | 1429.9 |
| 47.5° | 1302.5 | 1323.1 | 1364.3 | 1416.8 | 1454.3 | 1469.3 | 1521.8 | 1555.5 | 1675.5 | 1752.3 | 1553.6 |
| 50° | 1373.7 | 1377.5 | 1407.5 | 1486.2 | 1551.8 | 1561.1 | 1643.6 | 1699.8 | 1834.7 | 1906.0 | 1641.7 |
| 52.5° | 1450.6 | 1443.1 | 1459.9 | 1566.8 | 1658.6 | 1675.5 | 1769.2 | 1855.4 | 1990.3 | 2005.3 | 1677.3 |
| 55° | 1510.5 | 1510.5 | 1523.6 | 1654.8 | 1778.5 | 1787.9 | 1919.1 | 2010.9 | 2132.7 | 2063.4 | 1699.8 |
| 57.5° | 1587.4 | 1579.9 | 1600.5 | 1744.8 | 1928.5 | 1936.0 | 2087.8 | 2159.0 | 2211.4 | 2100.9 | 1696.1 |
| 60° | 1643.6 | 1653.0 | 1684.8 | 1861.0 | 2084.0 | 2117.7 | 2245.2 | 2267.7 | 2293.9 | 2114.0 | 1684.8 |
| 62.5° | 1722.3 | 1720.4 | 1782.3 | 1990.3 | 2286.4 | 2308.9 | 2397.0 | 2359.5 | 2357.6 | 2136.5 | 1669.8 |
| 65° | 1787.9 | 1802.9 | 1896.6 | 2145.9 | 2501.9 | 2516.9 | 2546.9 | 2498.2 | 2445.7 | 2160.8 | 1538.6 |
| 67.5° | 1889.1 | 1919.1 | 2037.2 | 2350.1 | 2732.4 | 2749.3 | 2775.6 | 2668.7 | 2470.1 | 1988.4 | 1281.9 |
| 70° | 2003.4 | 2042.8 | 2233.9 | 2621.9 | 2979.8 | 2998.6 | 3004.2 | 2685.6 | 2237.7 | 1561.1 | 869.6 |
| 72.5° | 1889.1 | 1952.8 | 2290.2 | 2771.8 | 3159.7 | 3161.6 | 2934.8 | 2372.6 | 1714.8 | 852.7 | 307.4 |
| 75° | 1216.3 | 1296.9 | 1896.6 | 2458.8 | 2721.2 | 2751.2 | 2301.4 | 1658.6 | 800.2 | 191.2 | 86.2 |
| 77.5° | 412.3 | 440.4 | 931.4 | 1551.8 | 1825.4 | 1836.6 | 1514.3 | 839.6 | 253.0 | 76.8 | 46.9 |
| 80° | 238.0 | 236.1 | 326.1 | 678.4 | 910.8 | 946.4 | 762.8 | 335.5 | 118.1 | 39.4 | 31.9 |
| 82.5° | 56.2 | 58.1 | 170.5 | 247.4 | 361.7 | 326.1 | 161.2 | 202.4 | 54.3 | 22.5 | 28.1 |
| 85° | 0.0 | 0.0 | 28.1 | 60.0 | 43.1 | 50.6 | 15.0 | 61.8 | 9.4 | 9.4 | 18.7 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 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° | 747.8 | 747.8 | 747.8 | 747.8 | 747.8 | 747.8 | 747.8 | 747.8 | 747.8 | 747.8 | 747.8 |
| 2.5° | 745.9 | 736.5 | 717.8 | 702.8 | 682.2 | 665.3 | 648.4 | 640.9 | 627.8 | 624.1 | 626.0 |
| 5° | 734.6 | 719.7 | 684.0 | 648.4 | 609.1 | 571.6 | 532.2 | 509.8 | 500.4 | 483.5 | 479.8 |
| 7.5° | 721.5 | 699.0 | 648.4 | 590.3 | 522.9 | 468.5 | 414.2 | 376.7 | 343.0 | 329.8 | 324.2 |
| 10° | 715.9 | 687.8 | 616.6 | 528.5 | 436.7 | 348.6 | 281.1 | 232.4 | 202.4 | 191.2 | 187.4 |
| 12.5° | 715.9 | 682.2 | 586.6 | 468.5 | 346.7 | 245.5 | 183.7 | 155.6 | 146.2 | 144.3 | 142.4 |
| 15° | 723.4 | 680.3 | 558.5 | 404.8 | 262.4 | 170.5 | 140.6 | 136.8 | 134.9 | 134.9 | 136.8 |
| 17.5° | 727.2 | 676.6 | 528.5 | 343.0 | 193.0 | 136.8 | 131.2 | 131.2 | 131.2 | 131.2 | 131.2 |
| 20° | 736.5 | 674.7 | 494.8 | 277.4 | 146.2 | 127.4 | 125.6 | 125.6 | 125.6 | 125.6 | 127.4 |
| 22.5° | 738.4 | 674.7 | 453.5 | 213.6 | 129.3 | 121.8 | 119.9 | 119.9 | 119.9 | 121.8 | 121.8 |
| 25° | 749.6 | 670.9 | 414.2 | 163.0 | 121.8 | 114.3 | 114.3 | 112.4 | 114.3 | 114.3 | 114.3 |
| 27.5° | 764.6 | 672.8 | 365.5 | 134.9 | 114.3 | 108.7 | 106.8 | 106.8 | 106.8 | 106.8 | 106.8 |
| 30° | 781.5 | 676.6 | 314.8 | 119.9 | 106.8 | 103.1 | 101.2 | 99.3 | 99.3 | 99.3 | 99.3 |
| 32.5° | 813.4 | 680.3 | 260.5 | 108.7 | 99.3 | 95.6 | 93.7 | 91.8 | 91.8 | 91.8 | 91.8 |
| 35° | 862.1 | 700.9 | 213.6 | 101.2 | 91.8 | 88.1 | 86.2 | 84.3 | 84.3 | 84.3 | 82.5 |
| 37.5° | 927.7 | 732.8 | 168.7 | 93.7 | 84.3 | 80.6 | 78.7 | 76.8 | 75.0 | 75.0 | 75.0 |
| 40° | 1006.4 | 766.5 | 140.6 | 84.3 | 76.8 | 73.1 | 71.2 | 69.3 | 67.5 | 65.6 | 65.6 |
| 42.5° | 1100.1 | 807.7 | 112.4 | 76.8 | 69.3 | 65.6 | 63.7 | 61.8 | 58.1 | 56.2 | 58.1 |
| 45° | 1205.1 | 847.1 | 95.6 | 71.2 | 63.7 | 60.0 | 58.1 | 54.3 | 50.6 | 48.7 | 48.7 |
| 47.5° | 1296.9 | 856.5 | 84.3 | 63.7 | 58.1 | 54.3 | 52.5 | 46.9 | 43.1 | 39.4 | 39.4 |
| 50° | 1358.7 | 839.6 | 75.0 | 58.1 | 52.5 | 50.6 | 46.9 | 39.4 | 33.7 | 31.9 | 30.0 |
| 52.5° | 1366.2 | 794.6 | 65.6 | 52.5 | 48.7 | 45.0 | 39.4 | 33.7 | 28.1 | 24.4 | 24.4 |
| 55° | 1358.7 | 719.7 | 58.1 | 48.7 | 43.1 | 39.4 | 33.7 | 26.2 | 20.6 | 18.7 | 16.9 |
| 57.5° | 1334.4 | 640.9 | 52.5 | 43.1 | 39.4 | 33.7 | 26.2 | 20.6 | 15.0 | 13.1 | 11.2 |
| 60° | 1289.4 | 545.4 | 46.9 | 39.4 | 33.7 | 28.1 | 20.6 | 15.0 | 9.4 | 7.5 | 7.5 |
| 62.5° | 1205.1 | 440.4 | 41.2 | 33.7 | 28.1 | 22.5 | 16.9 | 9.4 | 5.6 | 3.7 | 3.7 |
| 65° | 1038.3 | 329.8 | 35.6 | 28.1 | 22.5 | 18.7 | 11.2 | 5.6 | 1.9 | 0.0 | 0.0 |
| 67.5° | 807.7 | 223.0 | 28.1 | 22.5 | 18.7 | 15.0 | 9.4 | 1.9 | 0.0 | 0.0 | 0.0 |
| 70° | 476.0 | 118.1 | 22.5 | 16.9 | 15.0 | 11.2 | 5.6 | 1.9 | 0.0 | 0.0 | 0.0 |
| 72.5° | 136.8 | 46.9 | 16.9 | 13.1 | 11.2 | 7.5 | 3.7 | 1.9 | 0.0 | 0.0 | 0.0 |
| 75° | 56.2 | 28.1 | 11.2 | 9.4 | 9.4 | 5.6 | 1.9 | 1.9 | 0.0 | 0.0 | 0.0 |
| 77.5° | 37.5 | 20.6 | 7.5 | 5.6 | 5.6 | 3.7 | 1.9 | 0.0 | 0.0 | 0.0 | 0.0 |
| 80° | 30.0 | 11.2 | 3.7 | 3.7 | 3.7 | 1.9 | 1.9 | 0.0 | 0.0 | 0.0 | 0.0 |
| 82.5° | 26.2 | 7.5 | 1.9 | 1.9 | 1.9 | 1.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 13.1 | 3.7 | 1.9 | 1.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 1.9 | 1.9 | 1.9 | 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 |

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-157-9
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 10/03/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: Invue
 Catalog Number: **EMM2-HTN-SA1A-827-U-5WQ**
 Description: Epic Modern Light Square 40W 5WQ Optic

Spectral Parameters

CCT (K): 2764
 CIE u': 0.2591
 CIE v': 0.5290
 Duv: 0.0020
 CIE x: 0.4581
 CIE y: 0.4156
 CIE z: 0.1263
 Peak Wavelength (nm): 603
 Dominant Wavelength (nm): 583
 Purity: 62.2537
 Rf: 84.7
 Rg: 94.6

| | | | |
|-----------|------|------|------|
| CRI (Ra): | 80.9 | | |
| R1: | 78.8 | R9: | -1.5 |
| R2: | 89.9 | R10: | 77.9 |
| R3: | 96.2 | R11: | 78.9 |
| R4: | 79.1 | R12: | 71.6 |
| R5: | 79.1 | R13: | 81.2 |
| R6: | 88.8 | R14: | 98.5 |
| R7: | 81.3 | R15: | 69.9 |
| R8: | 54.3 | | |



Test Conditions

Stabilization Time: 81M
 Operation Time: 2H 21M
 Sphere Temperature (°C): 25.2

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| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 2/8/2024 | 2/8/2025 |
| AC Power Source | IN0063 | 10/24/2023 | 10/24/2024 |
| DC Power Source | IN0208 | 10/24/2023 | 10/24/2024 |
| Sphere Thermometer | IN0085 | 10/24/2023 | 10/24/2024 |
| Room Thermometer | IN0046 | 10/24/2023 | 10/24/2024 |

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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 2700K 4-step quadrangle

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Photopic Flux vs. Wavelength



Photopic Lumens: 4337.9

| 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 | 0 | 0.0 | 490 | 18018 | 2.6 | 620 | 87426 | 22.8 | 750 | 2680 | 0.0 | 880 | 58 | 0.0 |
| 365 | 0 | 0.0 | 495 | 22295 | 3.9 | 625 | 83013 | 18.2 | 755 | 2287 | 0.0 | 885 | 46 | 0.0 |
| 370 | 0 | 0.0 | 500 | 26478 | 5.8 | 630 | 78077 | 14.1 | 760 | 1944 | 0.0 | 890 | 45 | 0.0 |
| 375 | 0 | 0.0 | 505 | 30524 | 8.5 | 635 | 72080 | 10.7 | 765 | 1653 | 0.0 | 895 | 41 | 0.0 |
| 380 | 0 | 0.0 | 510 | 33611 | 11.5 | 640 | 66249 | 7.9 | 770 | 1413 | 0.0 | 900 | 38 | 0.0 |
| 385 | 0 | 0.0 | 515 | 36490 | 15.2 | 645 | 59973 | 5.7 | 775 | 1198 | 0.0 | 905 | 33 | 0.0 |
| 390 | 0 | 0.0 | 520 | 38610 | 18.7 | 650 | 53972 | 3.9 | 780 | 1025 | 0.0 | 910 | 30 | 0.0 |
| 395 | 0 | 0.0 | 525 | 40511 | 21.9 | 655 | 48369 | 2.7 | 785 | 874 | 0.0 | 915 | 23 | 0.0 |
| 400 | 48 | 0.0 | 530 | 42223 | 24.9 | 660 | 42641 | 1.8 | 790 | 747 | 0.0 | 920 | 24 | 0.0 |
| 405 | 201 | 0.0 | 535 | 44137 | 27.6 | 665 | 37602 | 1.1 | 795 | 639 | 0.0 | 925 | 22 | 0.0 |
| 410 | 457 | 0.0 | 540 | 46032 | 30.0 | 670 | 32798 | 0.7 | 800 | 547 | 0.0 | 930 | 22 | 0.0 |
| 415 | 925 | 0.0 | 545 | 48553 | 32.5 | 675 | 28558 | 0.5 | 805 | 473 | 0.0 | 935 | 17 | 0.0 |
| 420 | 1816 | 0.0 | 550 | 51408 | 34.9 | 680 | 24782 | 0.3 | 810 | 401 | 0.0 | 940 | 13 | 0.0 |
| 425 | 3217 | 0.0 | 555 | 54711 | 37.4 | 685 | 21386 | 0.2 | 815 | 351 | 0.0 | 945 | 6 | 0.0 |
| 430 | 5520 | 0.0 | 560 | 58847 | 40.0 | 690 | 18413 | 0.1 | 820 | 307 | 0.0 | 950 | 10 | 0.0 |
| 435 | 9225 | 0.1 | 565 | 63386 | 42.4 | 695 | 15721 | 0.1 | 825 | 261 | 0.0 | 955 | 11 | 0.0 |
| 440 | 15522 | 0.2 | 570 | 68196 | 44.3 | 700 | 13432 | 0.0 | 830 | 228 | 0.0 | 960 | 8 | 0.0 |
| 445 | 27642 | 0.6 | 575 | 73613 | 46.0 | 705 | 11513 | 0.0 | 835 | 193 | 0.0 | 965 | 12 | 0.0 |
| 450 | 36602 | 0.9 | 580 | 79207 | 47.1 | 710 | 9780 | 0.0 | 840 | 174 | 0.0 | 970 | 3 | 0.0 |
| 455 | 28292 | 0.9 | 585 | 84248 | 47.0 | 715 | 8356 | 0.0 | 845 | 151 | 0.0 | 975 | 8 | 0.0 |
| 460 | 21166 | 0.9 | 590 | 88397 | 45.7 | 720 | 7161 | 0.0 | 850 | 123 | 0.0 | 980 | 2 | 0.0 |
| 465 | 19092 | 1.0 | 595 | 91428 | 43.4 | 725 | 6067 | 0.0 | 855 | 106 | 0.0 | 985 | 13 | 0.0 |
| 470 | 14951 | 0.9 | 600 | 93452 | 40.3 | 730 | 5164 | 0.0 | 860 | 95 | 0.0 | 990 | 16 | 0.0 |
| 475 | 12606 | 1.0 | 605 | 93959 | 36.4 | 735 | 4393 | 0.0 | 865 | 82 | 0.0 | 995 | 20 | 0.0 |
| 480 | 13323 | 1.3 | 610 | 93079 | 32.0 | 740 | 3694 | 0.0 | 870 | 77 | 0.0 | 1000 | 0 | 0.0 |
| 485 | 15164 | 1.8 | 615 | 90707 | 27.3 | 745 | 3157 | 0.0 | 875 | 65 | 0.0 | | | |

REPORT NUMBER: SP1-2407-157-9

Scotopic Flux vs. Wavelength



Scotopic Lumens: 5286.7

S/P: 1.22

| 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 | 0 | 0.0 | 490 | 18018 | 75.9 | 620 | 87426 | 0.4 | 750 | 2680 | 0.0 | 880 | 58 | 0.0 |
| 365 | 0 | 0.0 | 495 | 22295 | 93.2 | 625 | 83013 | 0.2 | 755 | 2287 | 0.0 | 885 | 46 | 0.0 |
| 370 | 0 | 0.0 | 500 | 26478 | 107.8 | 630 | 78077 | 0.1 | 760 | 1944 | 0.0 | 890 | 45 | 0.0 |
| 375 | 0 | 0.0 | 505 | 30524 | 118.7 | 635 | 72080 | 0.1 | 765 | 1653 | 0.0 | 895 | 41 | 0.0 |
| 380 | 0 | 0.0 | 510 | 33611 | 122.2 | 640 | 66249 | 0.1 | 770 | 1413 | 0.0 | 900 | 38 | 0.0 |
| 385 | 0 | 0.0 | 515 | 36490 | 120.8 | 645 | 59973 | 0.0 | 775 | 1198 | 0.0 | 905 | 33 | 0.0 |
| 390 | 0 | 0.0 | 520 | 38610 | 113.9 | 650 | 53972 | 0.0 | 780 | 1025 | 0.0 | 910 | 30 | 0.0 |
| 395 | 0 | 0.0 | 525 | 40511 | 104.1 | 655 | 48369 | 0.0 | 785 | 874 | 0.0 | 915 | 23 | 0.0 |
| 400 | 48 | 0.0 | 530 | 42223 | 92.4 | 660 | 42641 | 0.0 | 790 | 747 | 0.0 | 920 | 24 | 0.0 |
| 405 | 201 | 0.0 | 535 | 44137 | 80.5 | 665 | 37602 | 0.0 | 795 | 639 | 0.0 | 925 | 22 | 0.0 |
| 410 | 457 | 0.1 | 540 | 46032 | 68.2 | 670 | 32798 | 0.0 | 800 | 547 | 0.0 | 930 | 22 | 0.0 |
| 415 | 925 | 0.3 | 545 | 48553 | 57.1 | 675 | 28558 | 0.0 | 805 | 473 | 0.0 | 935 | 17 | 0.0 |
| 420 | 1816 | 1.1 | 550 | 51408 | 46.7 | 680 | 24782 | 0.0 | 810 | 401 | 0.0 | 940 | 13 | 0.0 |
| 425 | 3217 | 2.5 | 555 | 54711 | 37.4 | 685 | 21386 | 0.0 | 815 | 351 | 0.0 | 945 | 6 | 0.0 |
| 430 | 5520 | 5.9 | 560 | 58847 | 29.4 | 690 | 18413 | 0.0 | 820 | 307 | 0.0 | 950 | 10 | 0.0 |
| 435 | 9225 | 12.5 | 565 | 63386 | 22.5 | 695 | 15721 | 0.0 | 825 | 261 | 0.0 | 955 | 11 | 0.0 |
| 440 | 15522 | 26.3 | 570 | 68196 | 16.9 | 700 | 13432 | 0.0 | 830 | 228 | 0.0 | 960 | 8 | 0.0 |
| 445 | 27642 | 55.2 | 575 | 73613 | 12.4 | 705 | 11513 | 0.0 | 835 | 193 | 0.0 | 965 | 12 | 0.0 |
| 450 | 36602 | 85.4 | 580 | 79207 | 9.0 | 710 | 9780 | 0.0 | 840 | 174 | 0.0 | 970 | 3 | 0.0 |
| 455 | 28292 | 75.1 | 585 | 84248 | 6.3 | 715 | 8356 | 0.0 | 845 | 151 | 0.0 | 975 | 8 | 0.0 |
| 460 | 21166 | 63.2 | 590 | 88397 | 4.4 | 720 | 7161 | 0.0 | 850 | 123 | 0.0 | 980 | 2 | 0.0 |
| 465 | 19092 | 63.2 | 595 | 91428 | 3.0 | 725 | 6067 | 0.0 | 855 | 106 | 0.0 | 985 | 13 | 0.0 |
| 470 | 14951 | 54.2 | 600 | 93452 | 2.0 | 730 | 5164 | 0.0 | 860 | 95 | 0.0 | 990 | 16 | 0.0 |
| 475 | 12606 | 48.8 | 605 | 93959 | 1.3 | 735 | 4393 | 0.0 | 865 | 82 | 0.0 | 995 | 20 | 0.0 |
| 480 | 13323 | 54.2 | 610 | 93079 | 0.9 | 740 | 3694 | 0.0 | 870 | 77 | 0.0 | 1000 | 0 | 0.0 |
| 485 | 15164 | 63.3 | 615 | 90707 | 0.5 | 745 | 3157 | 0.0 | 875 | 65 | 0.0 | | | |

REPORT NUMBER: SP1-2407-157-9

Melanopic Flux vs. Wavelength



Melanopic Lumens: 9797

M/P: 2.26

| 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 | 0 | 0.0 | 490 | 18018 | 27.7 | 620 | 87426 | 1.1 | 750 | 2680 | 0.0 | 880 | 58 | 0.0 |
| 365 | 0 | 0.0 | 495 | 22295 | 36.0 | 625 | 83013 | 0.7 | 755 | 2287 | 0.0 | 885 | 46 | 0.0 |
| 370 | 0 | 0.0 | 500 | 26478 | 44.2 | 630 | 78077 | 0.4 | 760 | 1944 | 0.0 | 890 | 45 | 0.0 |
| 375 | 0 | 0.0 | 505 | 30524 | 51.8 | 635 | 72080 | 0.3 | 765 | 1653 | 0.0 | 895 | 41 | 0.0 |
| 380 | 0 | 0.0 | 510 | 33611 | 57.0 | 640 | 66249 | 0.2 | 770 | 1413 | 0.0 | 900 | 38 | 0.0 |
| 385 | 0 | 0.0 | 515 | 36490 | 60.5 | 645 | 59973 | 0.1 | 775 | 1198 | 0.0 | 905 | 33 | 0.0 |
| 390 | 0 | 0.0 | 520 | 38610 | 61.4 | 650 | 53972 | 0.1 | 780 | 1025 | 0.0 | 910 | 30 | 0.0 |
| 395 | 0 | 0.0 | 525 | 40511 | 60.6 | 655 | 48369 | 0.0 | 785 | 874 | 0.0 | 915 | 23 | 0.0 |
| 400 | 48 | 0.0 | 530 | 42223 | 58.2 | 660 | 42641 | 0.0 | 790 | 747 | 0.0 | 920 | 24 | 0.0 |
| 405 | 201 | 0.0 | 535 | 44137 | 55.0 | 665 | 37602 | 0.0 | 795 | 639 | 0.0 | 925 | 22 | 0.0 |
| 410 | 457 | 0.0 | 540 | 46032 | 50.9 | 670 | 32798 | 0.0 | 800 | 547 | 0.0 | 930 | 22 | 0.0 |
| 415 | 925 | 0.1 | 545 | 48553 | 46.6 | 675 | 28558 | 0.0 | 805 | 473 | 0.0 | 935 | 17 | 0.0 |
| 420 | 1816 | 0.3 | 550 | 51408 | 42.0 | 680 | 24782 | 0.0 | 810 | 401 | 0.0 | 940 | 13 | 0.0 |
| 425 | 3217 | 0.8 | 555 | 54711 | 37.4 | 685 | 21386 | 0.0 | 815 | 351 | 0.0 | 945 | 6 | 0.0 |
| 430 | 5520 | 1.9 | 560 | 58847 | 32.9 | 690 | 18413 | 0.0 | 820 | 307 | 0.0 | 950 | 10 | 0.0 |
| 435 | 9225 | 4.1 | 565 | 63386 | 28.4 | 695 | 15721 | 0.0 | 825 | 261 | 0.0 | 955 | 11 | 0.0 |
| 440 | 15522 | 8.7 | 570 | 68196 | 24.1 | 700 | 13432 | 0.0 | 830 | 228 | 0.0 | 960 | 8 | 0.0 |
| 445 | 27642 | 18.5 | 575 | 73613 | 20.0 | 705 | 11513 | 0.0 | 835 | 193 | 0.0 | 965 | 12 | 0.0 |
| 450 | 36602 | 28.3 | 580 | 79207 | 16.3 | 710 | 9780 | 0.0 | 840 | 174 | 0.0 | 970 | 3 | 0.0 |
| 455 | 28292 | 24.7 | 585 | 84248 | 12.9 | 715 | 8356 | 0.0 | 845 | 151 | 0.0 | 975 | 8 | 0.0 |
| 460 | 21166 | 20.4 | 590 | 88397 | 9.8 | 720 | 7161 | 0.0 | 850 | 123 | 0.0 | 980 | 2 | 0.0 |
| 465 | 19092 | 20.1 | 595 | 91428 | 7.3 | 725 | 6067 | 0.0 | 855 | 106 | 0.0 | 985 | 13 | 0.0 |
| 470 | 14951 | 17.2 | 600 | 93452 | 5.3 | 730 | 5164 | 0.0 | 860 | 95 | 0.0 | 990 | 16 | 0.0 |
| 475 | 12606 | 15.7 | 605 | 93959 | 3.7 | 735 | 4393 | 0.0 | 865 | 82 | 0.0 | 995 | 20 | 0.0 |
| 480 | 13323 | 18.0 | 610 | 93079 | 2.5 | 740 | 3694 | 0.0 | 870 | 77 | 0.0 | 1000 | 0 | 0.0 |
| 485 | 15164 | 21.9 | 615 | 90707 | 1.7 | 745 | 3157 | 0.0 | 875 | 65 | 0.0 | | | |

Summary

$R_f = 84.7$
 $R_g = 94.6$
 $CIE R_a = 80.9$
 $R_g = -1.5$



Color Vector Graphics



Individual Sample Fidelity Index ($R_{f,i}$)

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 84 | CES51 = 95 | CES76 = 81 |
| CES02 = 63 | CES27 = 95 | CES52 = 94 | CES77 = 84 |
| CES03 = 31 | CES28 = 94 | CES53 = 89 | CES78 = 81 |
| CES04 = 71 | CES29 = 87 | CES54 = 91 | CES79 = 89 |
| CES05 = 50 | CES30 = 94 | CES55 = 90 | CES80 = 89 |
| CES06 = 52 | CES31 = 89 | CES56 = 86 | CES81 = 69 |
| CES07 = 43 | CES32 = 82 | CES57 = 85 | CES82 = 96 |
| CES08 = 41 | CES33 = 91 | CES58 = 86 | CES83 = 93 |
| CES09 = 29 | CES34 = 92 | CES59 = 91 | CES84 = 92 |
| CES10 = 77 | CES35 = 96 | CES60 = 94 | CES85 = 76 |
| CES11 = 60 | CES36 = 90 | CES61 = 89 | CES86 = 65 |
| CES12 = 66 | CES37 = 96 | CES62 = 94 | CES87 = 84 |
| CES13 = 44 | CES38 = 98 | CES63 = 87 | CES88 = 86 |
| CES14 = 74 | CES39 = 98 | CES64 = 82 | CES89 = 73 |
| CES15 = 72 | CES40 = 95 | CES65 = 78 | CES90 = 88 |
| CES16 = 48 | CES41 = 96 | CES66 = 81 | CES91 = 82 |
| CES17 = 50 | CES42 = 97 | CES67 = 80 | CES92 = 64 |
| CES18 = 57 | CES43 = 91 | CES68 = 83 | CES93 = 78 |
| CES19 = 73 | CES44 = 99 | CES69 = 88 | CES94 = 59 |
| CES20 = 67 | CES45 = 93 | CES70 = 80 | CES95 = 74 |
| CES21 = 87 | CES46 = 89 | CES71 = 79 | CES96 = 83 |
| CES22 = 79 | CES47 = 92 | CES72 = 92 | CES97 = 88 |
| CES23 = 92 | CES48 = 83 | CES73 = 75 | CES98 = 83 |
| CES24 = 91 | CES49 = 90 | CES74 = 91 | CES99 = 74 |
| CES25 = 72 | CES50 = 94 | CES75 = 81 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)