

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



Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: McGRAW-EDISON

Report Number: P630026

Luminaire Tested: GWS-SA1C-827-U-T3-W-GRSBK

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P630026
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-24)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA1C-827-U-T3-W-GRSBK
Description: GALLEON WALL SLIM LUMINAIRE. (1) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III OPTICS W/ FACTORY INSTALLED GLARE SHIELD, BK
Light Source: (16) 2700K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2181.9 lumens
Efficiency: N/A
Efficacy: 64.0 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type II - Short
BUG Rating: B1 - U0 - G0

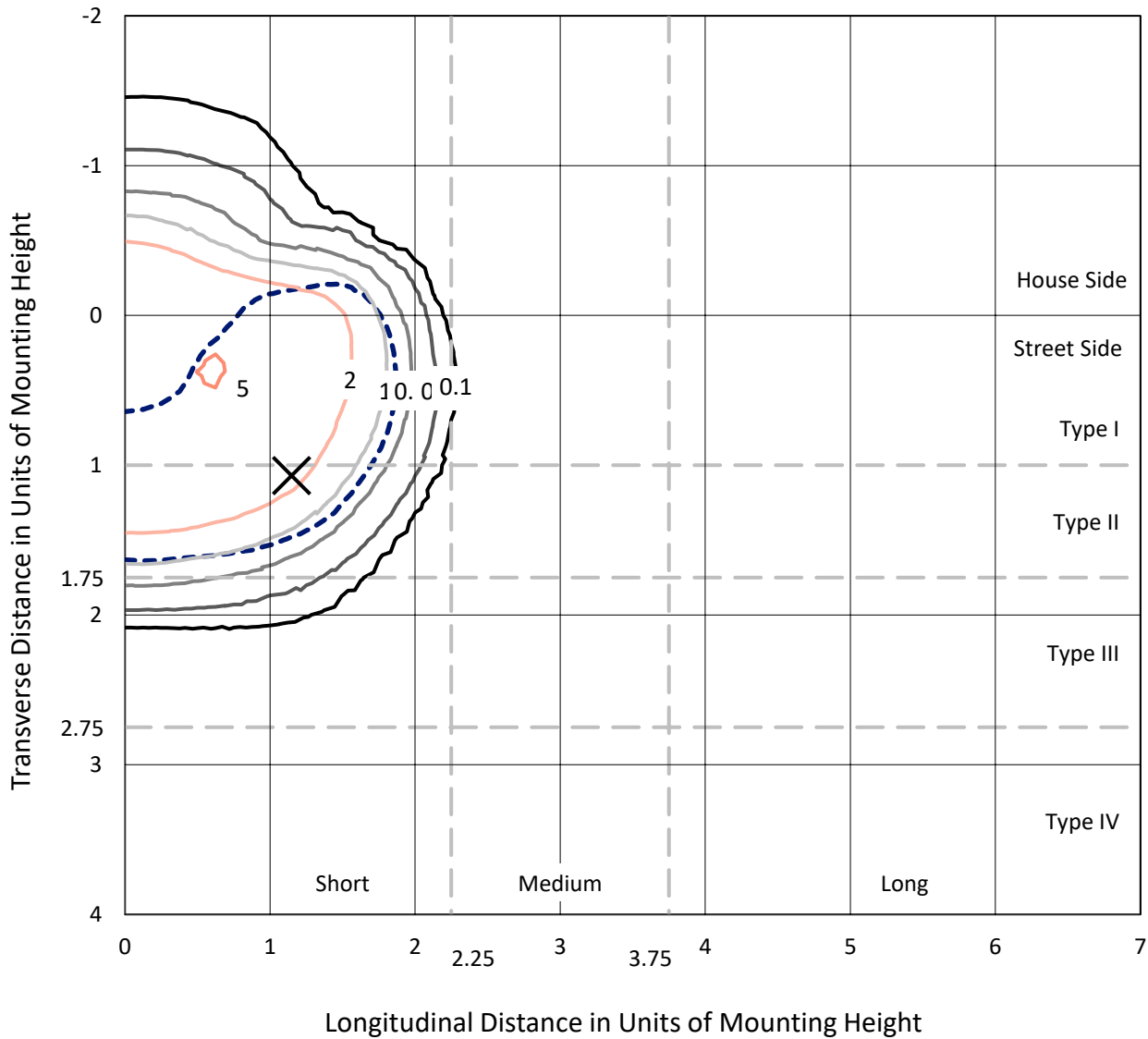
Input Watts (W): 34.1
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

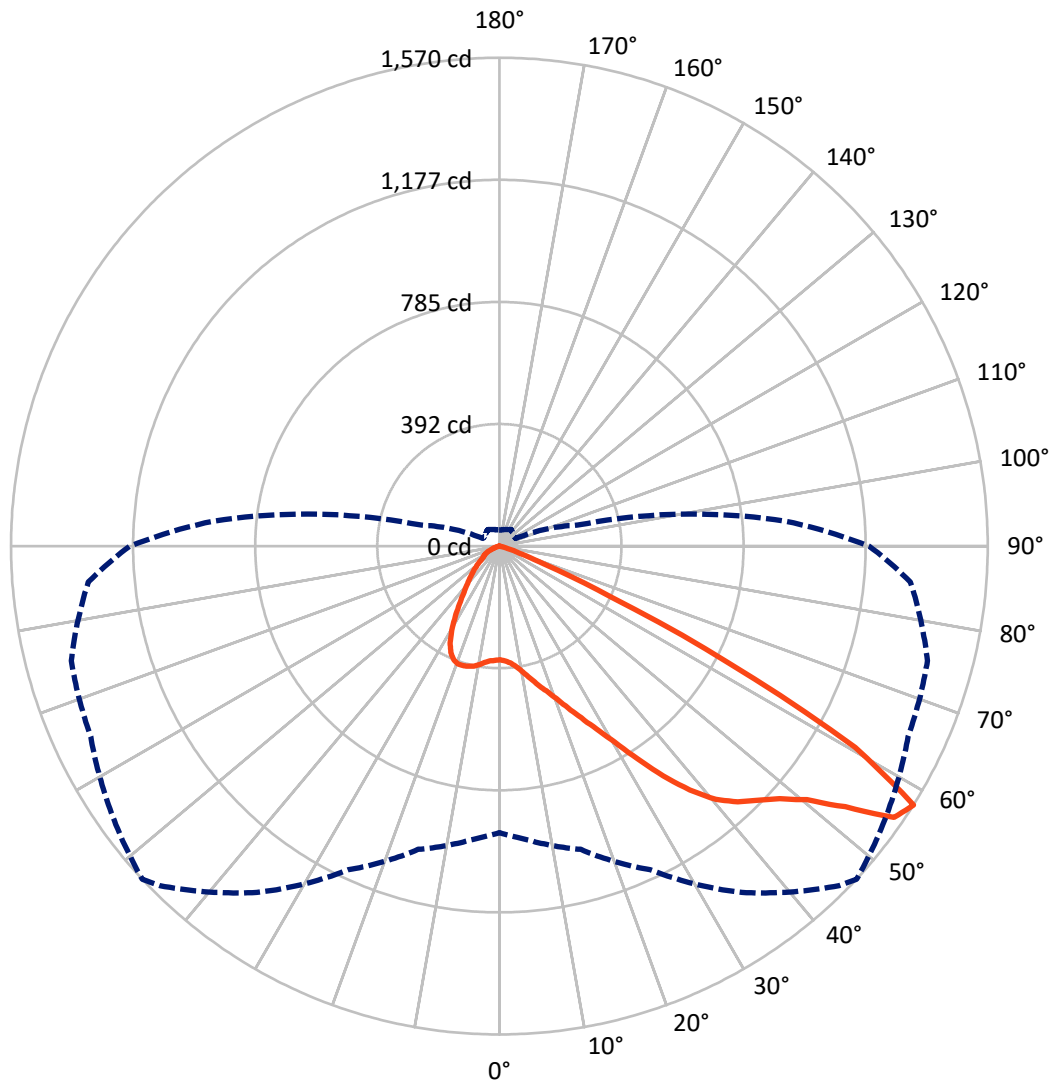
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 5.2 fc
 Type II - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 47-Deg Lateral - - - Horizontal Cone Through 57.5-Deg Vertical



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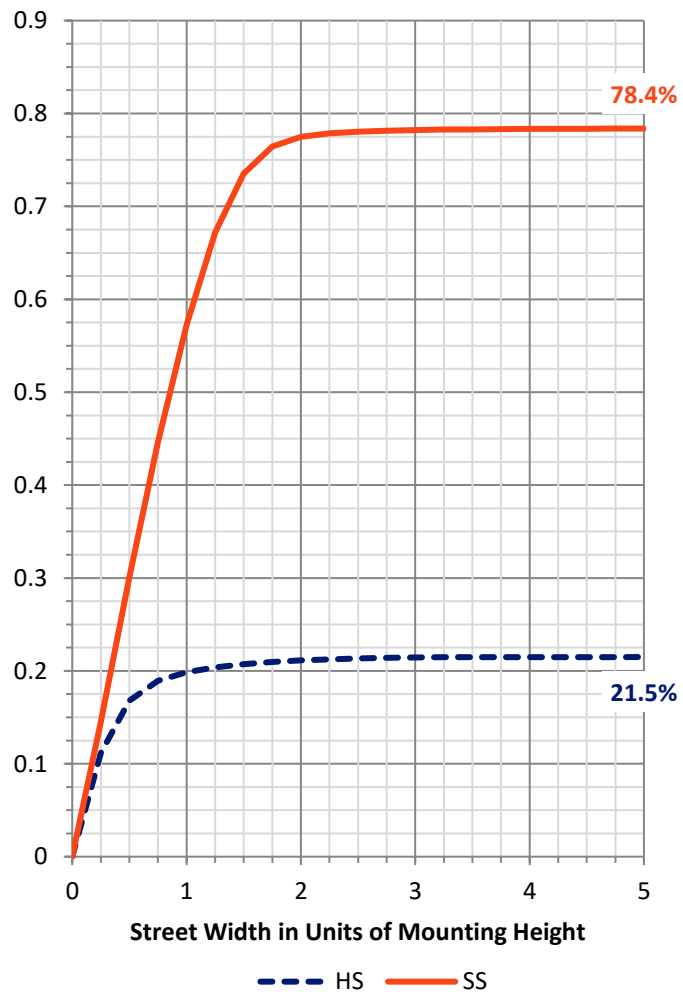
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 473.4 | 0.0 | 473.4 |
| | % Fixture | 21.7 | 0.0 | 21.7 |
| Street Side | Lumens | 1708.6 | 0.0 | 1708.6 |
| | % Fixture | 78.3 | 0.0 | 78.3 |
| Total | Lumens | 2181.9 | 0.0 | 2181.9 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 36.3 | 1.7 |
| 10°-20° | 122.6 | 5.6 |
| 20°-30° | 227.7 | 10.4 |
| 30°-40° | 364.5 | 16.7 |
| 40°-50° | 532.7 | 24.4 |
| 50°-60° | 657.5 | 30.1 |
| 60°-70° | 219.7 | 10.1 |
| 70°-80° | 20.5 | 0.9 |
| 80°-90° | 0.4 | 0.0 |
| 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° | 2181.9 | 100.0 |
| 0°-180° | 2181.9 | 100.0 |

Coefficient of Utilization



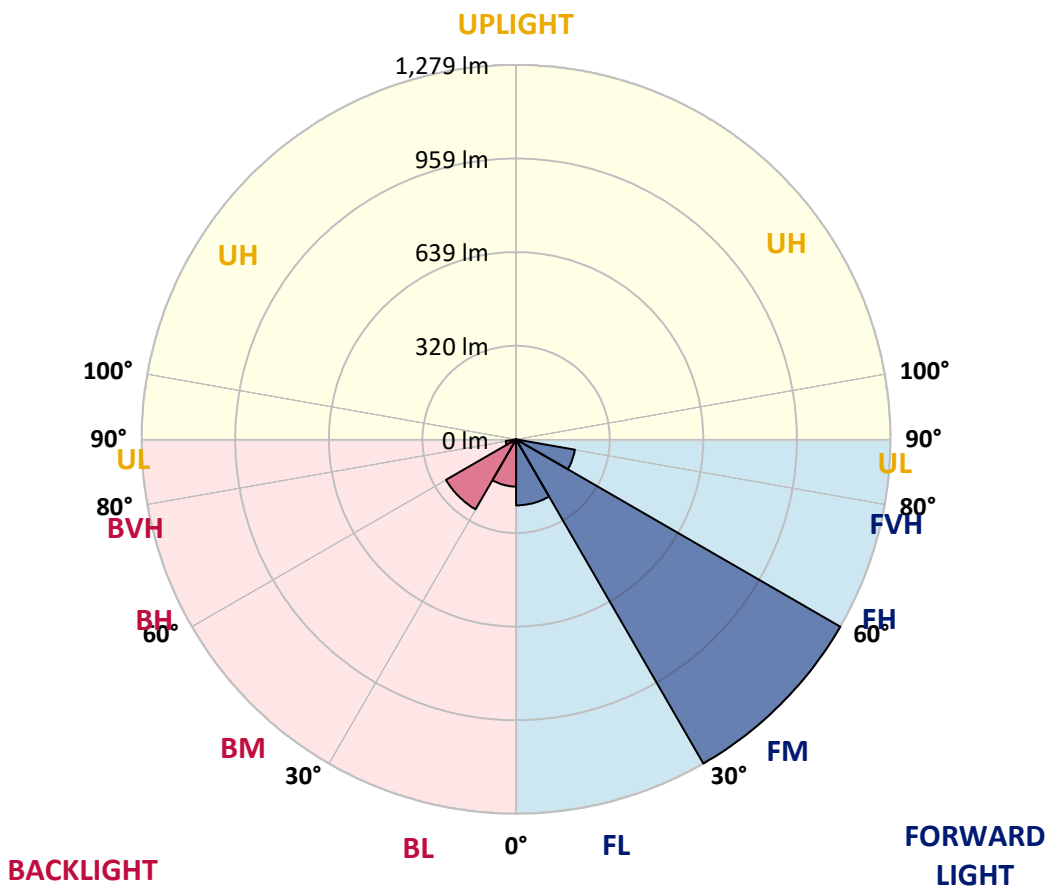
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|--------|
| | | | B | U | G |
| FL (0°-30°) | 225.5 | 10.3 | | | |
| FM (30°-60°) | 1278.6 | 58.6 | | | |
| FH (60°-80°) | 204.2 | 9.4 | | | G0/660 |
| FVH (80°-90°) | 0.3 | 0.0 | | | G0/10 |
| BL (0°-30°) | 161.1 | 7.4 | B1/500 | | |
| BM (30°-60°) | 276.1 | 12.7 | B1/1000 | | |
| BH (60°-80°) | 36.0 | 1.6 | B0/110 | | G0/110 |
| BVH (80°-90°) | 0.1 | 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-G0
 Type II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 47° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 365.3 | 365.3 | 365.3 | 365.3 | 365.3 | 365.3 | 365.3 | 365.3 | 365.3 | 365.3 | 365.3 |
| 2.5° | 369.1 | 368.8 | 368.5 | 370.1 | 369.6 | 369.3 | 369.8 | 369.8 | 369.8 | 368.3 | 365.3 |
| 5° | 377.9 | 377.9 | 377.7 | 379.2 | 377.9 | 377.2 | 377.4 | 377.4 | 376.4 | 373.6 | 369.8 |
| 7.5° | 391.8 | 391.3 | 390.8 | 392.4 | 391.1 | 390.8 | 391.3 | 389.8 | 388.0 | 383.5 | 378.2 |
| 10° | 411.9 | 411.9 | 411.1 | 412.6 | 411.6 | 411.1 | 411.1 | 410.1 | 406.8 | 399.7 | 391.8 |
| 12.5° | 439.5 | 438.2 | 436.4 | 435.2 | 434.7 | 434.4 | 434.7 | 433.1 | 429.6 | 420.5 | 409.6 |
| 15° | 469.6 | 468.6 | 465.8 | 463.8 | 461.0 | 460.5 | 462.0 | 460.7 | 457.2 | 444.8 | 429.3 |
| 17.5° | 507.6 | 508.9 | 501.8 | 497.5 | 489.4 | 488.9 | 489.4 | 491.4 | 488.9 | 472.9 | 450.4 |
| 20° | 540.0 | 541.0 | 535.7 | 532.7 | 525.3 | 522.0 | 523.1 | 526.3 | 523.6 | 504.8 | 473.4 |
| 22.5° | 574.7 | 576.0 | 570.4 | 564.1 | 560.8 | 560.8 | 564.6 | 569.2 | 565.4 | 540.8 | 499.8 |
| 25° | 616.3 | 617.3 | 612.7 | 604.4 | 598.5 | 605.9 | 611.5 | 623.6 | 617.3 | 583.8 | 530.9 |
| 27.5° | 663.9 | 664.1 | 657.6 | 648.9 | 645.9 | 659.6 | 665.2 | 683.9 | 681.4 | 632.2 | 563.8 |
| 30° | 714.8 | 715.1 | 713.5 | 707.7 | 704.9 | 722.9 | 730.5 | 757.6 | 755.8 | 692.3 | 608.7 |
| 32.5° | 767.7 | 767.7 | 770.5 | 770.0 | 773.3 | 802.7 | 814.9 | 845.8 | 844.0 | 765.7 | 664.4 |
| 35° | 820.9 | 821.2 | 826.0 | 838.2 | 851.8 | 890.8 | 906.8 | 944.3 | 940.2 | 853.6 | 735.6 |
| 37.5° | 881.5 | 878.9 | 885.5 | 903.8 | 934.2 | 979.2 | 994.4 | 1030.2 | 1025.6 | 943.5 | 828.5 |
| 40° | 954.4 | 949.9 | 949.9 | 971.1 | 1005.6 | 1057.5 | 1070.4 | 1088.2 | 1072.7 | 1016.2 | 919.7 |
| 42.5° | 1035.0 | 1030.7 | 1025.1 | 1043.8 | 1072.7 | 1113.2 | 1123.9 | 1119.1 | 1106.4 | 1084.9 | 1023.6 |
| 45° | 1116.5 | 1109.9 | 1113.7 | 1125.1 | 1141.9 | 1161.1 | 1165.2 | 1142.9 | 1137.0 | 1143.1 | 1109.4 |
| 47.5° | 1178.6 | 1174.0 | 1183.4 | 1199.4 | 1213.0 | 1215.8 | 1213.0 | 1182.1 | 1181.6 | 1203.2 | 1169.0 |
| 50° | 1199.4 | 1199.9 | 1225.7 | 1260.7 | 1282.7 | 1285.0 | 1281.2 | 1245.7 | 1240.9 | 1247.2 | 1201.1 |
| 52.5° | 1201.4 | 1203.4 | 1241.1 | 1307.8 | 1367.8 | 1395.2 | 1392.1 | 1353.9 | 1306.8 | 1299.9 | 1249.8 |
| 55° | 1152.5 | 1164.4 | 1217.1 | 1314.4 | 1442.0 | 1529.4 | 1539.5 | 1466.3 | 1396.4 | 1390.6 | 1354.4 |
| 57.5° | 921.2 | 945.6 | 1009.1 | 1147.7 | 1359.2 | 1543.3 | 1569.7 | 1517.0 | 1449.4 | 1424.5 | 1326.3 |
| 60° | 550.7 | 580.8 | 641.9 | 811.8 | 1034.5 | 1268.5 | 1313.8 | 1321.2 | 1290.0 | 1218.4 | 1017.5 |
| 62.5° | 236.3 | 233.8 | 309.0 | 439.2 | 615.3 | 806.2 | 826.8 | 858.7 | 885.8 | 810.8 | 617.5 |
| 65° | 81.1 | 88.1 | 122.6 | 198.1 | 308.0 | 374.4 | 392.6 | 421.2 | 459.7 | 379.4 | 226.2 |
| 67.5° | 50.2 | 53.2 | 70.7 | 117.0 | 166.2 | 163.6 | 155.5 | 151.0 | 146.9 | 100.6 | 62.1 |
| 70° | 36.5 | 39.0 | 49.6 | 80.5 | 111.7 | 78.5 | 68.1 | 55.2 | 61.3 | 56.5 | 44.1 |
| 72.5° | 24.6 | 26.6 | 34.2 | 48.9 | 57.2 | 38.2 | 35.5 | 40.3 | 48.6 | 46.4 | 36.0 |
| 75° | 14.7 | 16.0 | 19.5 | 23.8 | 23.3 | 19.8 | 20.0 | 28.4 | 37.2 | 34.7 | 25.6 |
| 77.5° | 10.1 | 10.6 | 12.9 | 15.5 | 11.4 | 6.1 | 5.6 | 7.9 | 12.7 | 12.7 | 8.6 |
| 80° | 2.5 | 3.3 | 3.3 | 2.0 | 1.8 | 1.5 | 1.5 | 2.3 | 3.5 | 2.5 | 1.3 |
| 82.5° | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.5 | 0.5 | 0.5 | 0.5 |
| 85° | 0.0 | 0.0 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.5 | 0.5 | 0.5 |
| 87.5° | 0.0 | 0.0 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.5 | 0.5 |
| 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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CATALOG NUMBER: GWS-SA1C-827-U-T3-W-GRSBK

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 365.3 | 365.3 | 365.3 | 365.3 | 365.3 | 365.3 | 365.3 | 365.3 | 365.3 | 365.3 | 365.3 |
| 2.5° | 367.0 | 364.0 | 366.0 | 365.5 | 367.0 | 367.5 | 365.3 | 364.7 | 365.0 | 362.0 | 360.9 |
| 5° | 370.6 | 367.0 | 368.0 | 367.0 | 368.8 | 370.3 | 369.6 | 370.6 | 371.8 | 369.6 | 368.5 |
| 7.5° | 378.2 | 374.6 | 374.4 | 372.9 | 375.4 | 376.4 | 376.1 | 378.9 | 381.5 | 379.9 | 378.4 |
| 10° | 391.3 | 386.5 | 386.0 | 384.8 | 385.5 | 386.3 | 383.5 | 384.0 | 386.3 | 384.5 | 383.7 |
| 12.5° | 407.6 | 401.7 | 400.5 | 397.4 | 397.4 | 393.6 | 387.5 | 386.3 | 388.0 | 386.8 | 385.5 |
| 15° | 425.0 | 417.2 | 415.2 | 409.8 | 404.8 | 397.7 | 391.3 | 389.8 | 391.1 | 389.6 | 388.6 |
| 17.5° | 444.5 | 435.7 | 429.1 | 419.7 | 408.6 | 400.2 | 393.1 | 389.8 | 387.8 | 384.8 | 384.5 |
| 20° | 463.8 | 452.1 | 441.0 | 426.0 | 411.4 | 398.7 | 387.0 | 378.4 | 371.1 | 366.5 | 364.7 |
| 22.5° | 486.1 | 468.9 | 450.9 | 429.8 | 408.8 | 389.6 | 369.1 | 354.4 | 341.7 | 337.4 | 335.4 |
| 25° | 509.9 | 487.6 | 460.7 | 433.4 | 400.2 | 369.3 | 341.4 | 319.7 | 302.9 | 297.4 | 295.1 |
| 27.5° | 536.2 | 505.6 | 470.9 | 432.6 | 382.5 | 340.4 | 303.4 | 276.3 | 259.9 | 254.8 | 256.6 |
| 30° | 569.7 | 528.9 | 483.5 | 424.8 | 355.9 | 299.9 | 256.6 | 233.8 | 221.4 | 216.6 | 216.8 |
| 32.5° | 614.2 | 562.3 | 502.0 | 408.1 | 321.7 | 253.8 | 215.8 | 199.1 | 190.7 | 184.4 | 183.9 |
| 35° | 678.1 | 613.2 | 519.3 | 381.2 | 280.1 | 212.8 | 185.2 | 172.0 | 160.3 | 153.0 | 154.3 |
| 37.5° | 754.6 | 677.3 | 528.6 | 345.0 | 233.5 | 180.9 | 162.1 | 148.7 | 135.5 | 124.6 | 125.9 |
| 40° | 845.2 | 761.2 | 527.9 | 297.4 | 191.0 | 159.1 | 142.9 | 127.2 | 110.7 | 100.8 | 101.8 |
| 42.5° | 946.3 | 840.4 | 511.4 | 247.0 | 158.3 | 141.3 | 124.4 | 104.6 | 88.7 | 82.6 | 82.8 |
| 45° | 1034.0 | 904.8 | 482.5 | 194.8 | 133.2 | 124.1 | 105.1 | 84.9 | 77.8 | 73.5 | 73.2 |
| 47.5° | 1098.8 | 951.9 | 441.2 | 153.2 | 113.0 | 108.4 | 86.4 | 76.0 | 70.4 | 66.9 | 66.4 |
| 50° | 1135.0 | 968.3 | 395.6 | 120.1 | 95.5 | 91.9 | 77.3 | 68.9 | 65.1 | 62.8 | 62.3 |
| 52.5° | 1183.7 | 988.1 | 363.0 | 94.7 | 80.0 | 75.2 | 71.2 | 64.1 | 61.6 | 59.8 | 59.0 |
| 55° | 1260.7 | 1026.4 | 334.6 | 75.2 | 66.6 | 65.6 | 67.1 | 61.3 | 59.8 | 57.0 | 56.0 |
| 57.5° | 1188.2 | 922.0 | 259.9 | 58.3 | 56.2 | 60.0 | 64.8 | 58.5 | 54.7 | 52.2 | 51.2 |
| 60° | 836.1 | 613.0 | 130.7 | 46.9 | 50.2 | 56.2 | 61.0 | 52.9 | 49.1 | 49.6 | 49.1 |
| 62.5° | 461.0 | 306.7 | 58.8 | 39.3 | 43.6 | 49.6 | 52.2 | 45.8 | 43.3 | 47.6 | 48.4 |
| 65° | 150.7 | 104.4 | 33.9 | 30.4 | 34.4 | 40.5 | 45.1 | 43.6 | 43.1 | 48.1 | 49.6 |
| 67.5° | 46.4 | 34.4 | 23.0 | 21.8 | 23.8 | 29.9 | 38.0 | 47.1 | 50.7 | 52.2 | 52.9 |
| 70° | 34.7 | 27.1 | 19.8 | 18.5 | 19.5 | 22.8 | 32.2 | 39.3 | 37.0 | 37.2 | 36.7 |
| 72.5° | 27.9 | 21.5 | 17.0 | 16.2 | 16.2 | 15.7 | 17.0 | 21.3 | 24.1 | 25.3 | 25.3 |
| 75° | 19.5 | 15.2 | 12.9 | 11.9 | 9.4 | 7.6 | 6.8 | 6.8 | 6.1 | 5.8 | 5.6 |
| 77.5° | 6.6 | 5.6 | 5.1 | 4.1 | 2.8 | 2.3 | 2.0 | 1.8 | 1.3 | 0.8 | 0.5 |
| 80° | 1.0 | 0.8 | 0.5 | 0.5 | 0.5 | 0.3 | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 |
| 82.5° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 0.5 | 0.5 | 0.5 | 0.5 | 0.3 | 0.3 | 0.3 | 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



LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

Invue

Report Number: SP1-2407-157-9

Test Date: 10/03/2024

Luminaire Tested: EMM2-HTN-SA1A-827-U-5WQ

Data applicable to all product families utilizing light square engine

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

REPORT NUMBER: SP1-2407-157-9

| 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



CCT = 2764K
 CIE x = 0.4581
 CIE y = 0.4156
 Duv = 0.0020

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)