

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: P635465

Luminaire Tested: GWS-SA3D-827-U-T2-W-HSS

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P635465
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-22)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA3D-827-U-T2-W-HSS
Description: GALLEON WALL SLIM LUMINAIRE. (3) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II OPTICS WITH HOUSE SIDE SHIELD
Light Source: (48) 2700K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9690.3 lumens
Efficiency: N/A
Efficacy: 80.2 lumens/watt
Luminous Opening: Rectangular (W 1.5' x L: 0.5' x H: 0')
IES Classification: Type II - Short
BUG Rating: B1 - U0 - G2

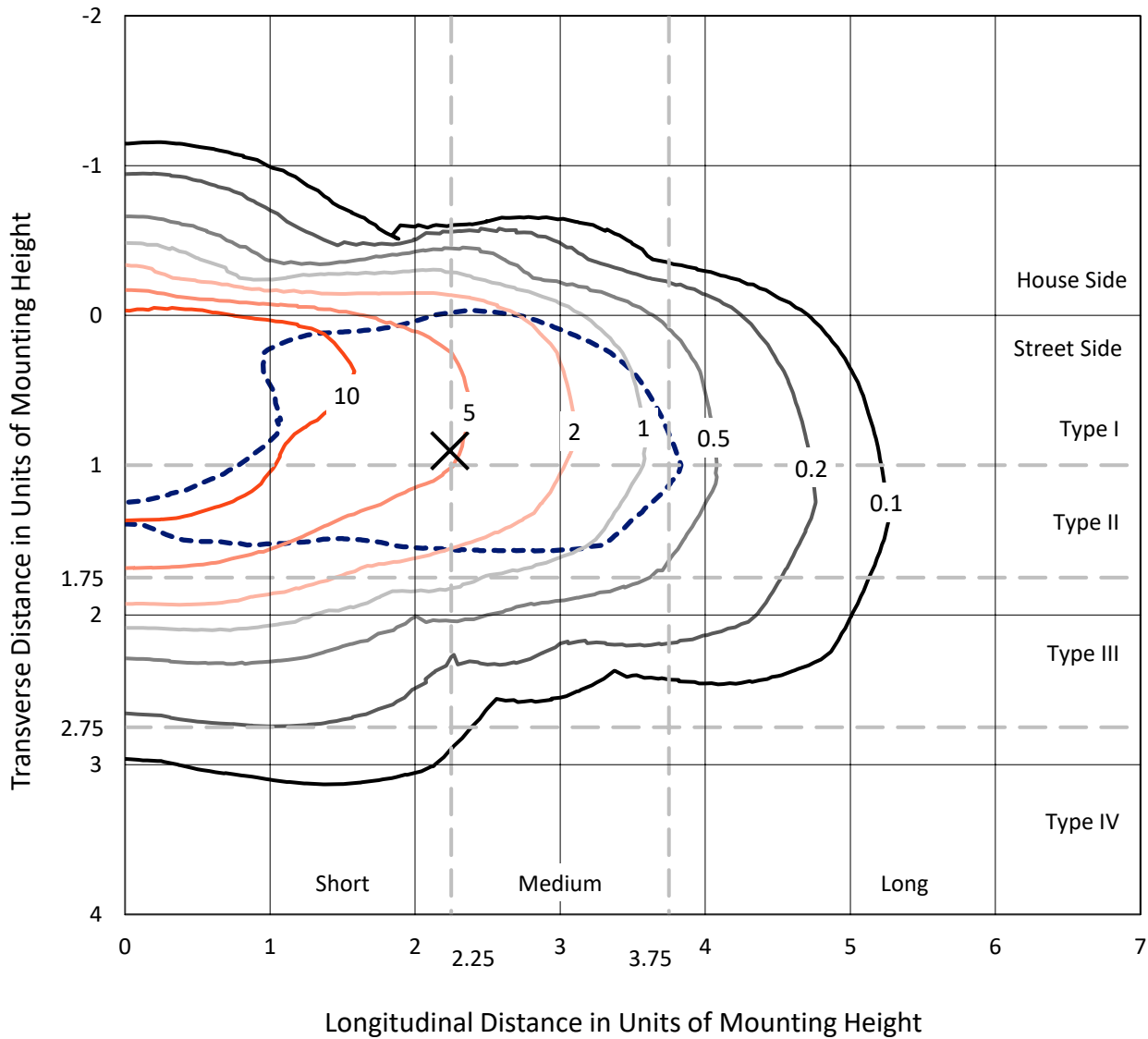
Input Watts (W): 120.8
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

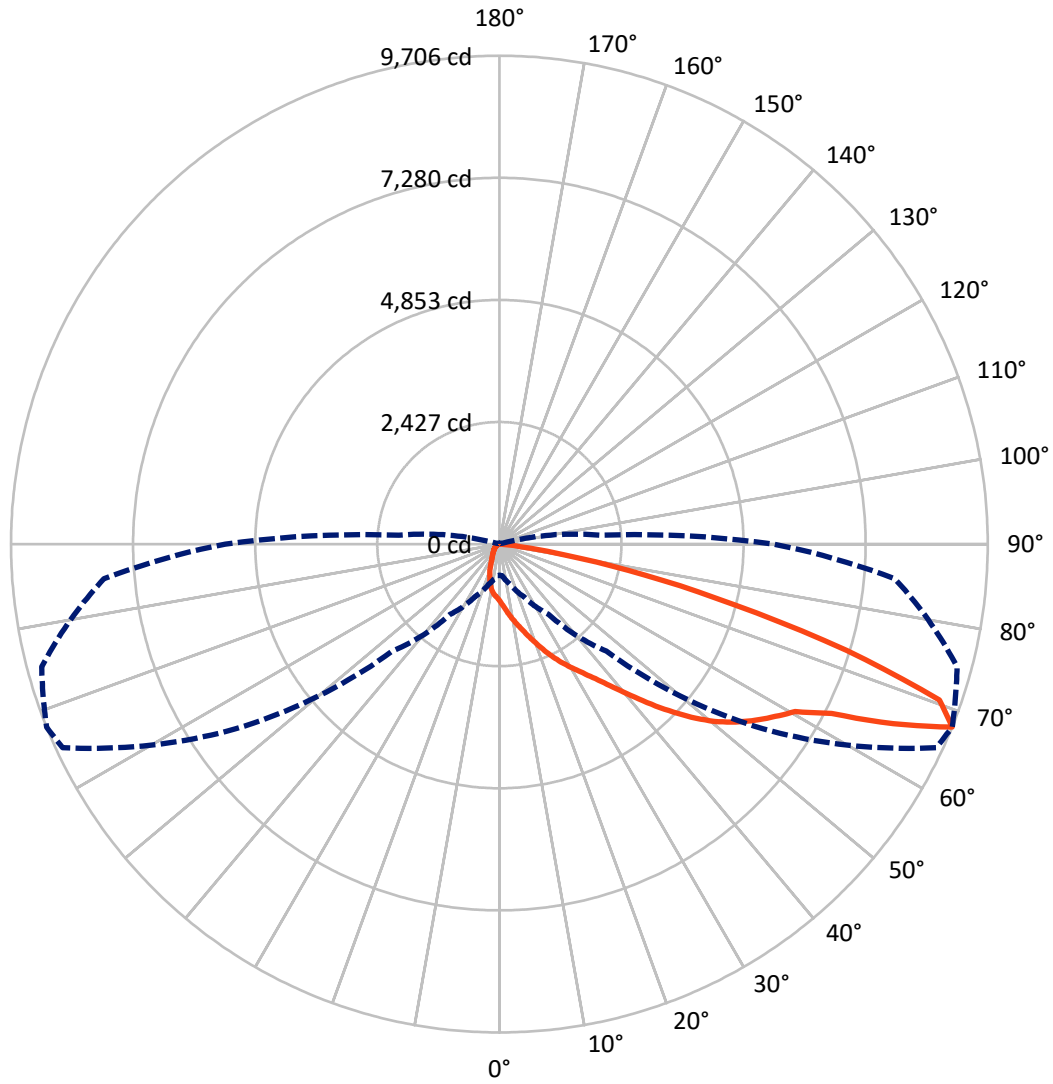
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 18.2 fc
 Type II - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 68-Deg Lateral - - - Horizontal Cone Through 67.5-Deg Vertical

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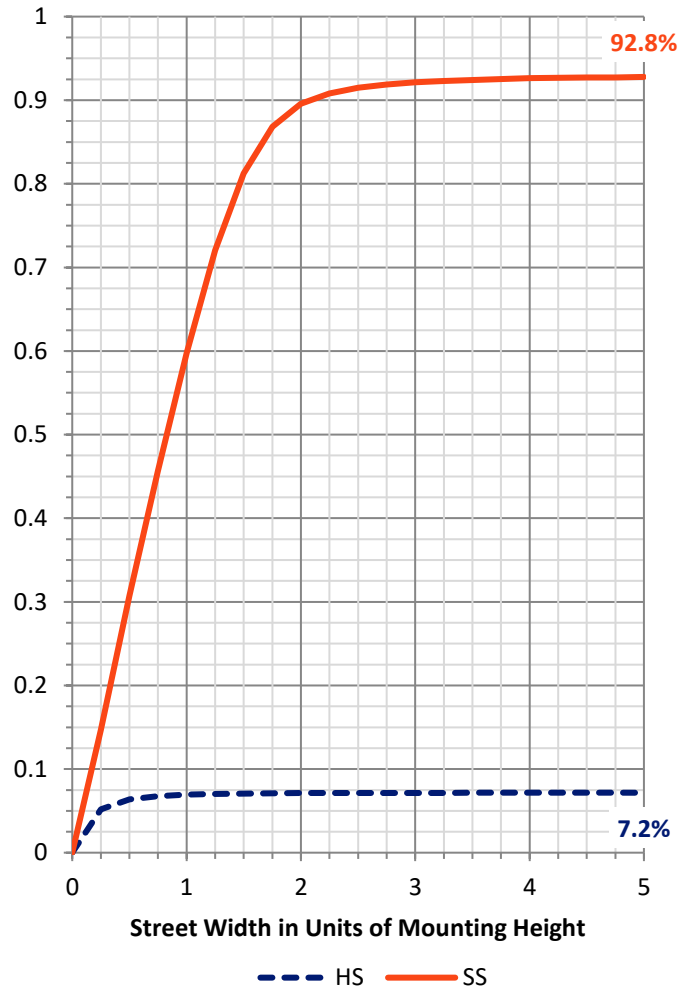
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 699.7 | 0.0 | 699.7 |
| | % Fixture | 7.2 | 0.0 | 7.2 |
| Street Side | Lumens | 8990.5 | 0.0 | 8990.5 |
| | % Fixture | 92.8 | 0.0 | 92.8 |
| Total | Lumens | 9690.3 | 0.0 | 9690.3 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 110.0 | 1.1 |
| 10°-20° | 315.8 | 3.3 |
| 20°-30° | 542.8 | 5.6 |
| 30°-40° | 943.7 | 9.7 |
| 40°-50° | 1646.6 | 17.0 |
| 50°-60° | 2483.6 | 25.6 |
| 60°-70° | 2490.4 | 25.7 |
| 70°-80° | 1098.7 | 11.3 |
| 80°-90° | 58.7 | 0.6 |
| 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° | 9690.3 | 100.0 |
| 0°-180° | 9690.3 | 100.0 |

Coefficient of Utilization

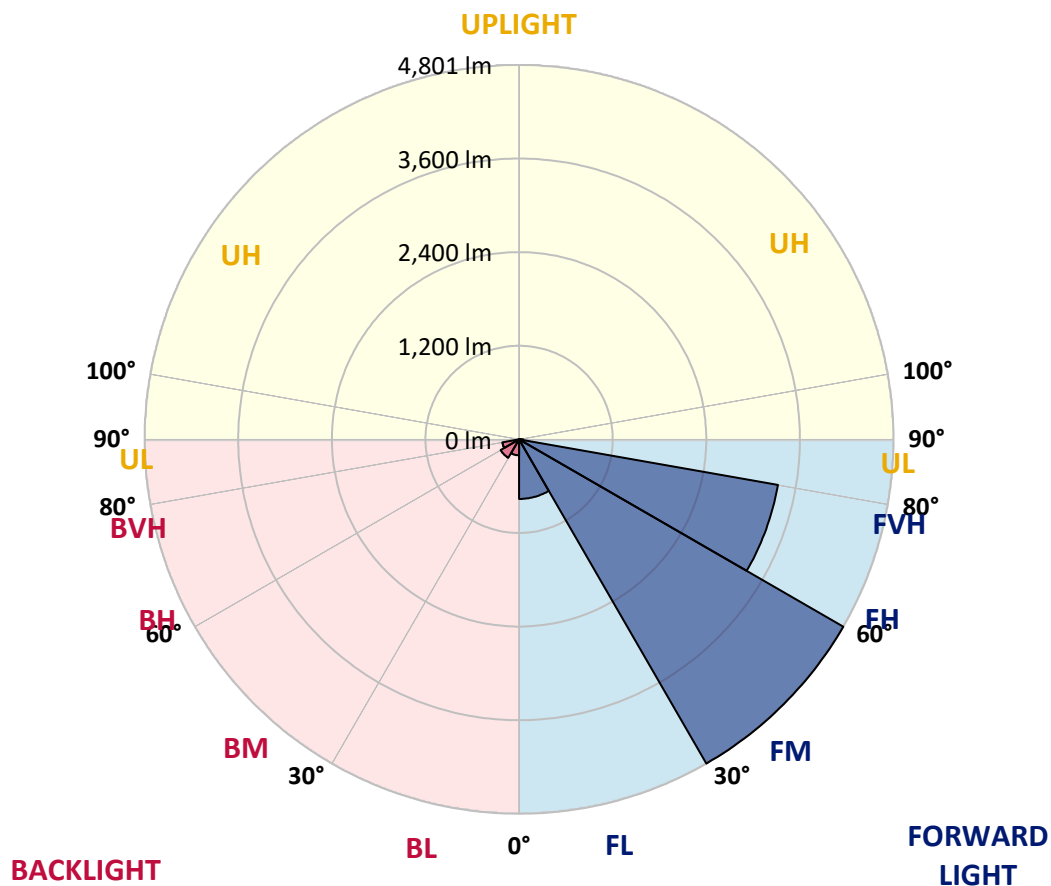


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 763.9 | 7.9 | | | |
| FM (30°-60°) | 4800.6 | 49.5 | | | |
| FH (60°-80°) | 3370.7 | 34.8 | | | G2/5000 |
| FVH (80°-90°) | 55.4 | 0.6 | | | G1/100 |
| BL (0°-30°) | 204.7 | 2.1 | B1/500 | | |
| BM (30°-60°) | 273.3 | 2.8 | B1/1000 | | |
| BH (60°-80°) | 218.4 | 2.3 | B1/500 | | G1/500 |
| BVH (80°-90°) | 3.3 | 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 II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 68° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1127.7 | 1127.7 | 1127.7 | 1127.7 | 1127.7 | 1127.7 | 1127.7 | 1127.7 | 1127.7 | 1127.7 | 1127.7 |
| 2.5° | 1313.2 | 1321.5 | 1313.2 | 1315.0 | 1290.9 | 1279.8 | 1255.7 | 1222.3 | 1214.0 | 1192.6 | 1160.2 |
| 5° | 1473.6 | 1481.0 | 1472.7 | 1470.8 | 1443.0 | 1422.6 | 1382.7 | 1325.2 | 1308.5 | 1266.8 | 1202.8 |
| 7.5° | 1560.8 | 1565.4 | 1568.2 | 1572.9 | 1562.6 | 1546.0 | 1509.8 | 1438.4 | 1420.8 | 1353.1 | 1263.1 |
| 10° | 1570.1 | 1573.8 | 1587.7 | 1615.5 | 1635.9 | 1646.1 | 1625.7 | 1559.9 | 1532.0 | 1466.2 | 1337.3 |
| 12.5° | 1544.1 | 1549.7 | 1571.9 | 1618.3 | 1674.9 | 1726.8 | 1739.8 | 1682.3 | 1657.2 | 1572.9 | 1424.5 |
| 15° | 1509.8 | 1514.4 | 1545.0 | 1608.1 | 1693.4 | 1788.9 | 1842.7 | 1817.7 | 1789.9 | 1701.8 | 1520.9 |
| 17.5° | 1456.9 | 1463.4 | 1506.1 | 1591.4 | 1701.8 | 1838.1 | 1954.0 | 1962.4 | 1942.9 | 1847.4 | 1627.6 |
| 20° | 1427.3 | 1431.9 | 1469.9 | 1558.0 | 1696.2 | 1874.3 | 2057.9 | 2136.7 | 2115.4 | 2015.2 | 1750.0 |
| 22.5° | 1452.3 | 1456.0 | 1481.0 | 1549.7 | 1677.6 | 1894.7 | 2154.3 | 2311.1 | 2299.0 | 2195.1 | 1878.9 |
| 25° | 1584.0 | 1596.0 | 1581.2 | 1593.3 | 1686.0 | 1905.8 | 2232.2 | 2485.4 | 2488.2 | 2383.4 | 2012.4 |
| 27.5° | 1851.1 | 1835.3 | 1800.1 | 1739.8 | 1750.9 | 1935.5 | 2299.0 | 2649.5 | 2673.7 | 2567.0 | 2131.1 |
| 30° | 2122.8 | 2113.5 | 2092.2 | 1998.5 | 1920.6 | 2001.3 | 2355.6 | 2817.4 | 2855.4 | 2747.9 | 2236.9 |
| 32.5° | 2427.9 | 2437.2 | 2399.2 | 2286.9 | 2154.3 | 2134.8 | 2414.0 | 2976.9 | 3048.3 | 2952.8 | 2361.1 |
| 35° | 2792.4 | 2795.1 | 2720.0 | 2595.8 | 2445.5 | 2355.6 | 2518.8 | 3153.1 | 3284.8 | 3214.3 | 2527.1 |
| 37.5° | 3147.6 | 3164.2 | 3123.4 | 2927.8 | 2794.2 | 2630.1 | 2692.2 | 3379.4 | 3564.9 | 3537.1 | 2735.8 |
| 40° | 3461.9 | 3487.9 | 3474.9 | 3285.7 | 3110.5 | 2972.3 | 2961.2 | 3644.6 | 3903.4 | 3934.9 | 3011.2 |
| 42.5° | 3712.3 | 3729.0 | 3739.2 | 3604.8 | 3449.9 | 3372.0 | 3293.2 | 3952.5 | 4303.1 | 4432.0 | 3348.8 |
| 45° | 3976.6 | 3982.2 | 4003.5 | 3912.7 | 3777.3 | 3783.7 | 3685.4 | 4326.3 | 4724.1 | 4982.9 | 3736.4 |
| 47.5° | 4313.3 | 4331.8 | 4321.6 | 4226.1 | 4103.7 | 4177.0 | 4090.7 | 4711.1 | 5139.6 | 5570.8 | 4133.4 |
| 50° | 4723.2 | 4742.7 | 4733.4 | 4622.1 | 4485.8 | 4516.4 | 4462.6 | 5084.9 | 5540.2 | 6125.4 | 4463.5 |
| 52.5° | 4934.6 | 4950.4 | 5065.4 | 5115.5 | 5044.1 | 4849.3 | 4779.8 | 5495.7 | 5878.7 | 6581.7 | 4766.8 |
| 55° | 4832.6 | 4843.8 | 5094.1 | 5305.6 | 5567.1 | 5372.4 | 5098.8 | 5812.9 | 6177.3 | 6937.8 | 4992.1 |
| 57.5° | 4409.7 | 4470.0 | 4810.4 | 5168.3 | 5718.3 | 5888.9 | 5616.3 | 6157.9 | 6464.8 | 7185.4 | 5213.8 |
| 60° | 3542.6 | 3539.8 | 4027.6 | 4670.3 | 5423.4 | 6030.8 | 6347.0 | 6624.3 | 6753.2 | 7375.5 | 5510.5 |
| 62.5° | 1957.7 | 1975.3 | 2624.5 | 3471.2 | 4603.6 | 5663.6 | 6895.1 | 7430.2 | 7410.8 | 7707.5 | 5975.2 |
| 65° | 974.7 | 1009.9 | 1362.3 | 1988.3 | 3063.2 | 4680.5 | 6989.7 | 8660.0 | 8604.3 | 8489.3 | 6935.0 |
| 67.5° | 618.6 | 632.5 | 827.2 | 1155.5 | 1702.7 | 3008.4 | 6400.8 | 9577.1 | 9706.0 | 9416.7 | 7887.4 |
| 70° | 400.6 | 423.8 | 575.0 | 790.1 | 1027.5 | 1550.6 | 4688.9 | 8982.7 | 9278.5 | 9314.7 | 7293.9 |
| 72.5° | 217.9 | 234.6 | 367.2 | 563.9 | 741.9 | 775.3 | 2633.8 | 6741.2 | 7216.9 | 7901.4 | 5706.2 |
| 75° | 124.3 | 136.3 | 201.2 | 383.0 | 544.4 | 472.0 | 1167.6 | 4512.7 | 4815.9 | 5646.9 | 4088.9 |
| 77.5° | 75.1 | 85.3 | 113.1 | 186.4 | 341.3 | 315.3 | 441.4 | 2746.9 | 2939.8 | 3369.2 | 2146.0 |
| 80° | 34.3 | 40.8 | 71.4 | 102.9 | 186.4 | 149.3 | 168.8 | 1280.7 | 1322.5 | 1382.7 | 710.4 |
| 82.5° | 15.8 | 18.5 | 32.5 | 61.2 | 105.7 | 86.2 | 64.9 | 295.8 | 416.4 | 394.1 | 180.8 |
| 85° | 1.9 | 1.9 | 12.1 | 25.0 | 29.7 | 22.3 | 26.9 | 66.8 | 84.4 | 118.7 | 51.9 |
| 87.5° | 0.0 | 0.0 | 0.9 | 0.9 | 1.9 | 2.8 | 5.6 | 8.3 | 12.1 | 19.5 | 13.0 |
| 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: P635465

CATALOG NUMBER: GWS-SA3D-827-U-T2-W-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1127.7 | 1127.7 | 1127.7 | 1127.7 | 1127.7 | 1127.7 | 1127.7 | 1127.7 | 1127.7 | 1127.7 | 1127.7 |
| 2.5° | 1145.3 | 1119.4 | 1096.2 | 1061.9 | 1038.7 | 1012.7 | 995.1 | 973.8 | 965.4 | 958.9 | 949.6 |
| 5° | 1171.3 | 1129.6 | 1073.0 | 1009.9 | 958.0 | 908.8 | 863.4 | 833.7 | 807.8 | 804.0 | 791.1 |
| 7.5° | 1214.0 | 1151.8 | 1056.3 | 953.4 | 865.3 | 783.6 | 719.7 | 667.7 | 641.8 | 633.4 | 618.6 |
| 10° | 1270.5 | 1185.2 | 1031.3 | 873.6 | 746.5 | 649.2 | 576.8 | 518.4 | 477.6 | 462.8 | 451.6 |
| 12.5° | 1333.6 | 1215.8 | 991.4 | 775.3 | 630.6 | 519.3 | 427.5 | 365.4 | 339.4 | 330.2 | 321.8 |
| 15° | 1405.9 | 1244.6 | 928.3 | 677.0 | 517.5 | 382.1 | 317.2 | 290.3 | 279.1 | 276.4 | 273.6 |
| 17.5° | 1475.5 | 1263.1 | 853.2 | 575.0 | 397.8 | 296.8 | 266.2 | 256.0 | 253.2 | 250.4 | 248.5 |
| 20° | 1554.3 | 1276.1 | 765.1 | 478.5 | 308.8 | 251.3 | 236.5 | 229.1 | 223.5 | 217.9 | 217.0 |
| 22.5° | 1635.0 | 1276.1 | 669.6 | 383.9 | 258.7 | 225.4 | 208.7 | 194.8 | 184.6 | 179.0 | 177.1 |
| 25° | 1712.0 | 1258.5 | 575.0 | 307.0 | 228.1 | 200.3 | 179.0 | 163.2 | 149.3 | 142.8 | 141.0 |
| 27.5° | 1766.7 | 1213.0 | 492.4 | 259.7 | 206.8 | 178.1 | 152.1 | 134.5 | 123.3 | 116.9 | 115.9 |
| 30° | 1801.0 | 1145.3 | 416.4 | 231.8 | 188.3 | 154.9 | 128.9 | 114.1 | 105.7 | 101.1 | 99.2 |
| 32.5° | 1827.0 | 1061.9 | 348.7 | 212.4 | 170.6 | 134.5 | 112.2 | 100.2 | 92.7 | 89.0 | 88.1 |
| 35° | 1878.9 | 983.0 | 298.6 | 194.8 | 152.1 | 117.8 | 98.3 | 89.0 | 83.5 | 78.8 | 77.9 |
| 37.5° | 1951.2 | 917.2 | 258.7 | 179.0 | 134.5 | 104.8 | 89.0 | 80.7 | 76.0 | 71.4 | 70.5 |
| 40° | 2057.9 | 875.5 | 229.1 | 163.2 | 118.7 | 94.6 | 81.6 | 74.2 | 67.7 | 63.1 | 62.1 |
| 42.5° | 2222.0 | 856.0 | 209.6 | 147.5 | 104.8 | 85.3 | 75.1 | 65.8 | 59.4 | 54.7 | 53.8 |
| 45° | 2417.7 | 866.2 | 192.9 | 131.7 | 95.5 | 78.8 | 66.8 | 57.5 | 51.0 | 46.4 | 45.4 |
| 47.5° | 2627.3 | 902.3 | 179.0 | 116.9 | 86.2 | 72.3 | 59.4 | 49.2 | 43.6 | 39.0 | 38.0 |
| 50° | 2846.2 | 961.7 | 166.9 | 102.9 | 78.8 | 64.9 | 51.0 | 42.7 | 37.1 | 33.4 | 32.5 |
| 52.5° | 3036.3 | 1042.4 | 154.9 | 92.7 | 72.3 | 57.5 | 44.5 | 37.1 | 31.5 | 27.8 | 26.9 |
| 55° | 3218.0 | 1118.4 | 145.6 | 83.5 | 64.9 | 50.1 | 39.0 | 31.5 | 26.9 | 23.2 | 22.3 |
| 57.5° | 3415.6 | 1199.1 | 134.5 | 75.1 | 58.4 | 44.5 | 34.3 | 26.9 | 23.2 | 19.5 | 18.5 |
| 60° | 3703.1 | 1318.7 | 117.8 | 68.6 | 51.0 | 39.0 | 29.7 | 24.1 | 20.4 | 15.8 | 14.8 |
| 62.5° | 4117.6 | 1536.7 | 99.2 | 59.4 | 43.6 | 33.4 | 25.0 | 20.4 | 16.7 | 13.0 | 11.1 |
| 65° | 4892.9 | 1907.6 | 81.6 | 49.2 | 35.2 | 27.8 | 21.3 | 16.7 | 13.0 | 9.3 | 8.3 |
| 67.5° | 5451.2 | 2004.1 | 65.8 | 39.9 | 28.7 | 21.3 | 17.6 | 13.0 | 9.3 | 6.5 | 5.6 |
| 70° | 4765.8 | 1439.3 | 51.0 | 32.5 | 24.1 | 16.7 | 13.9 | 10.2 | 6.5 | 4.6 | 3.7 |
| 72.5° | 3590.8 | 940.4 | 38.0 | 25.0 | 18.5 | 13.9 | 10.2 | 8.3 | 5.6 | 3.7 | 2.8 |
| 75° | 2530.8 | 543.4 | 27.8 | 18.5 | 13.0 | 10.2 | 8.3 | 6.5 | 4.6 | 2.8 | 2.8 |
| 77.5° | 1297.4 | 224.4 | 19.5 | 13.0 | 9.3 | 6.5 | 5.6 | 3.7 | 3.7 | 2.8 | 1.9 |
| 80° | 394.1 | 74.2 | 11.1 | 8.3 | 6.5 | 4.6 | 2.8 | 2.8 | 2.8 | 1.9 | 0.9 |
| 82.5° | 90.0 | 24.1 | 6.5 | 6.5 | 4.6 | 3.7 | 2.8 | 0.9 | 0.9 | 0.0 | 0.0 |
| 85° | 23.2 | 7.4 | 5.6 | 4.6 | 4.6 | 3.7 | 1.9 | 0.9 | 0.0 | 0.0 | 0.0 |
| 87.5° | 8.3 | 4.6 | 4.6 | 4.6 | 3.7 | 2.8 | 1.9 | 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



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 ($\mu\text{W}/\text{nm}$) | 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 | 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

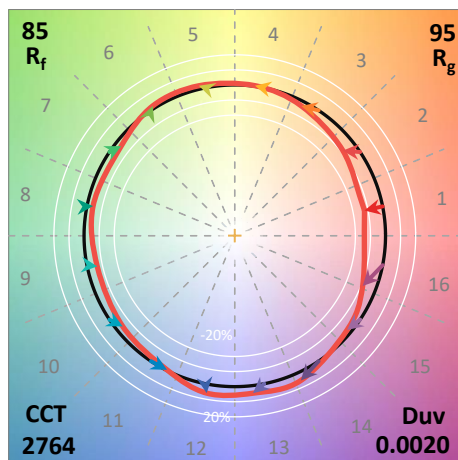
| λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360 | 0 | 0.0 | 490 | 18018 | 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)