

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: P643394

Luminaire Tested: GWS-SA6E-827-U-T3-W

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P643394
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-23)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SAGE-827-U-T3-W
Description: GALLEON WALL SLIM LUMINAIRE. (6) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III OPTICS
Light Source: (96) 2700K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 32929.5 lumens
Efficiency: N/A
Efficacy: 101.7 lumens/watt
Luminous Opening: Rectangular (W 2' x L: 1' x H: 0')
IES Classification: Type III - Short
BUG Rating: B3 - U0 - G4

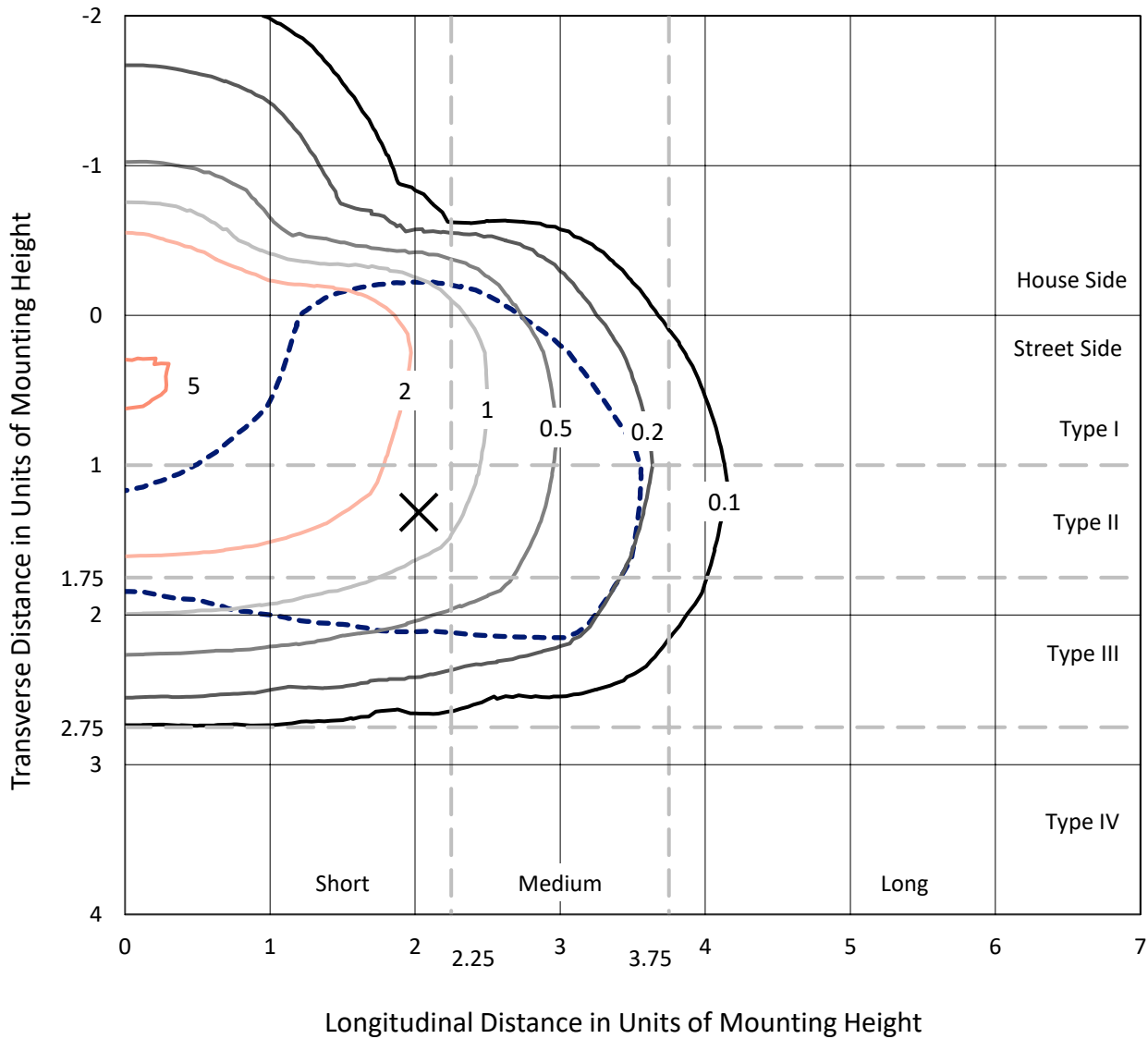
Input Watts (W): 323.8
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P643394
 CATALOG NUMBER: GWS-SA6E-827-U-T3-W

Iso-Footcandle Lines of Horizontal Illumination

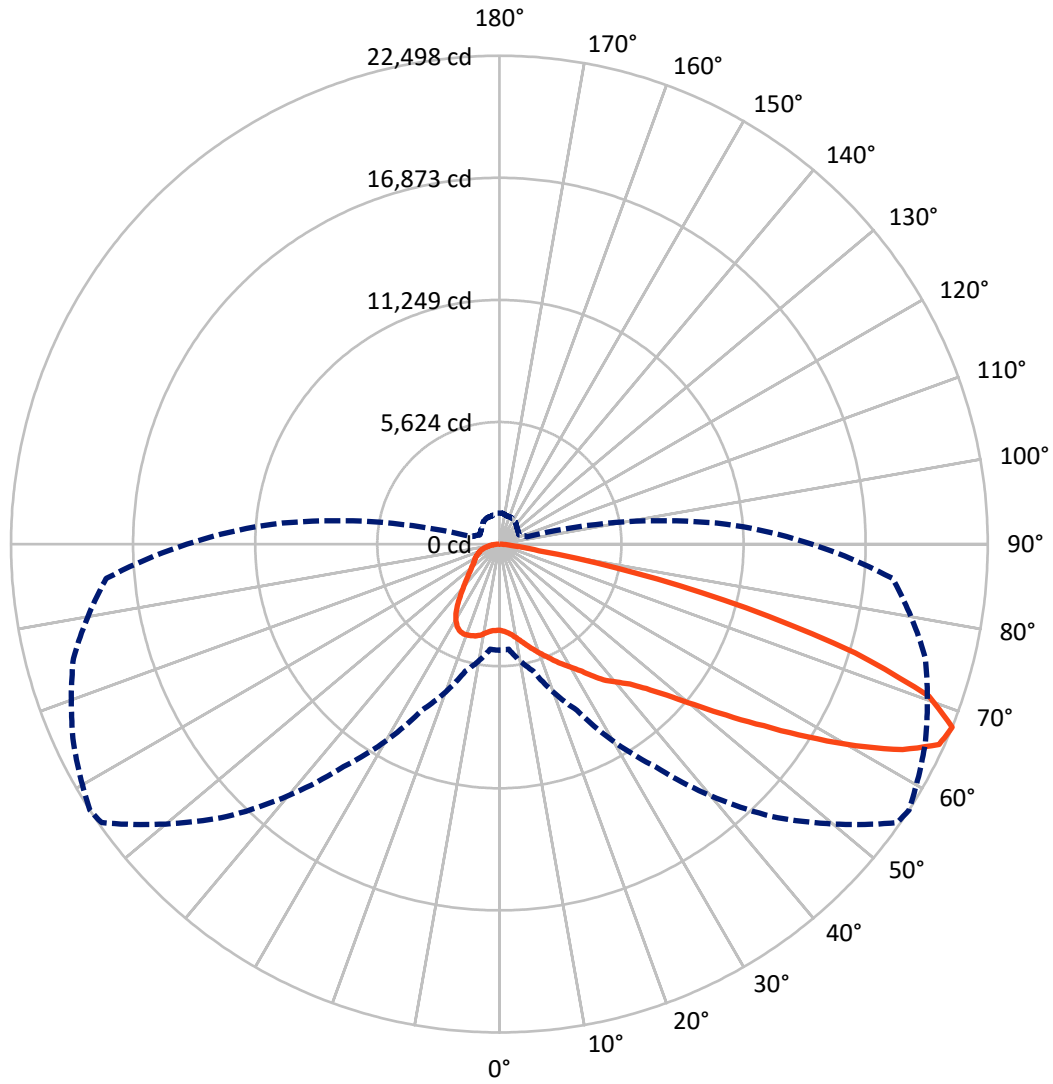
✕ Max cd
 - - - 1/2 Max cd



Based on 30 foot mounting height. Maximum calculated value = 5.2 fc
 Type III - Short - N/A

REPORT NUMBER: P643394
CATALOG NUMBER: GWS-SA6E-827-U-T3-W

Luminous Intensity Polar Plot



— Vertical Plane Through 57-Deg Lateral - - - Horizontal Cone Through 67.5-Deg Vertical

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CATALOG NUMBER: GWS-SA6E-827-U-T3-W

FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 7240.0 | 0.0 | 7240.0 |
| | % Fixture | 22.0 | 0.0 | 22.0 |
| Street Side | Lumens | 25689.5 | 0.0 | 25689.5 |
| | % Fixture | 78.0 | 0.0 | 78.0 |
| Total | Lumens | 32929.5 | 0.0 | 32929.5 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 393.5 | 1.2 |
| 10°-20° | 1302.8 | 4.0 |
| 20°-30° | 2322.6 | 7.1 |
| 30°-40° | 3376.7 | 10.3 |
| 40°-50° | 4887.3 | 14.8 |
| 50°-60° | 7648.4 | 23.2 |
| 60°-70° | 8922.3 | 27.1 |
| 70°-80° | 3724.5 | 11.3 |
| 80°-90° | 351.5 | 1.1 |
| 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° | 32929.5 | 100.0 |
| 0°-180° | 32929.5 | 100.0 |

Coefficient of Utilization



REPORT NUMBER: P643394

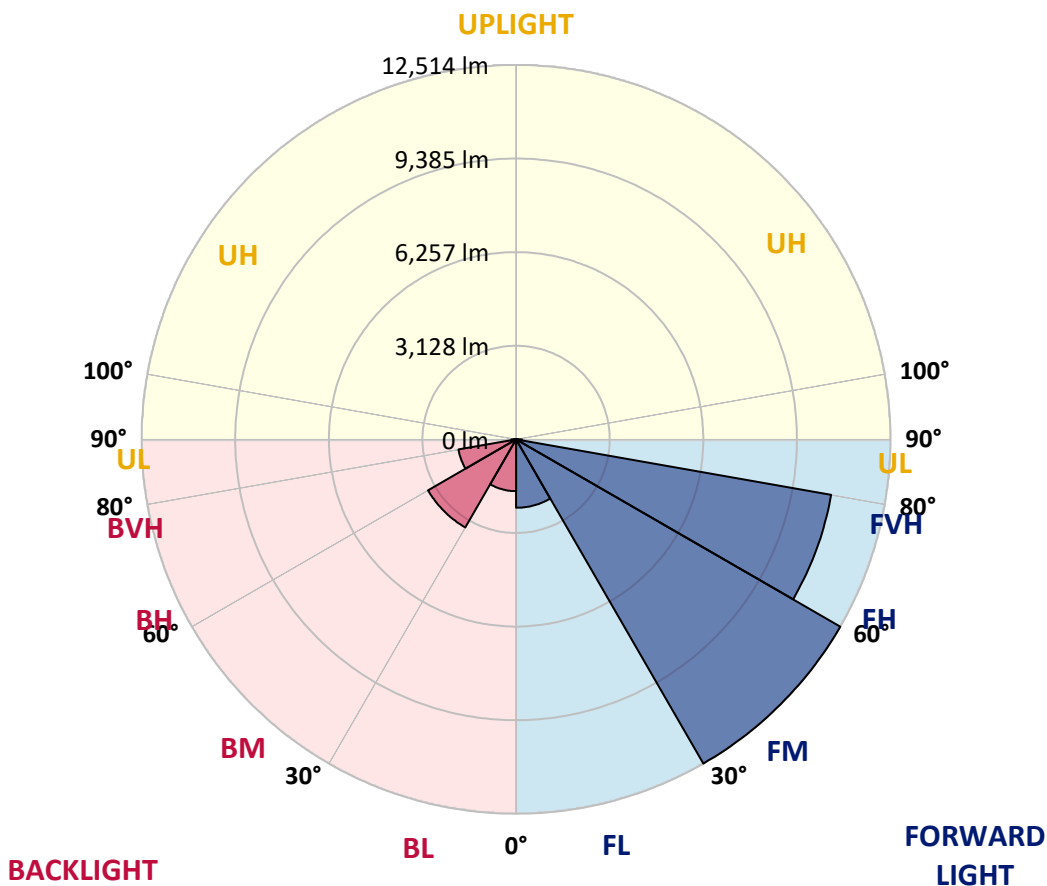
CATALOG NUMBER: GWS-SA6E-827-U-T3-W

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|---------|-----------|-------------------------|------|----------|
| | | | B | U | G |
| FL (0°-30°) | 2287.3 | 6.9 | | | |
| FM (30°-60°) | 12513.7 | 38.0 | | | |
| FH (60°-80°) | 10692.8 | 32.5 | | | G4/12000 |
| FVH (80°-90°) | 195.8 | 0.6 | | | G2/225 |
| BL (0°-30°) | 1731.6 | 5.3 | B3/2500 | | |
| BM (30°-60°) | 3398.6 | 10.3 | B3/5000 | | |
| BH (60°-80°) | 1954.1 | 5.9 | B3/2500 | | G3/2500 |
| BVH (80°-90°) | 155.7 | 0.5 | | | G2/225 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B3-U0-G4

Type III Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 57° | 65° | 75° | 85° |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0° | 3967.8 | 3967.8 | 3967.8 | 3967.8 | 3967.8 | 3967.8 | 3967.8 | 3967.8 | 3967.8 | 3967.8 | 3967.8 |
| 2.5° | 4024.4 | 4019.7 | 4017.3 | 4031.5 | 4026.8 | 4024.4 | 4024.4 | 4022.0 | 4017.3 | 3998.4 | 3972.5 |
| 5° | 4135.3 | 4125.8 | 4116.4 | 4128.2 | 4118.8 | 4109.3 | 4107.0 | 4102.2 | 4085.7 | 4057.4 | 4017.3 |
| 7.5° | 4250.9 | 4241.4 | 4243.8 | 4250.9 | 4243.8 | 4239.1 | 4232.0 | 4227.3 | 4201.3 | 4156.5 | 4102.2 |
| 10° | 4413.6 | 4413.6 | 4418.3 | 4425.4 | 4427.8 | 4420.7 | 4406.5 | 4399.5 | 4368.8 | 4312.2 | 4236.7 |
| 12.5° | 4649.5 | 4644.8 | 4644.8 | 4640.1 | 4647.2 | 4640.1 | 4625.9 | 4614.1 | 4576.4 | 4503.3 | 4394.8 |
| 15° | 4960.9 | 4942.0 | 4925.5 | 4894.9 | 4885.4 | 4859.5 | 4864.2 | 4857.1 | 4821.7 | 4722.6 | 4585.8 |
| 17.5° | 5293.5 | 5291.2 | 5265.2 | 5203.9 | 5142.5 | 5100.1 | 5109.5 | 5107.2 | 5088.3 | 4953.8 | 4779.3 |
| 20° | 5586.0 | 5597.8 | 5574.2 | 5527.1 | 5444.5 | 5364.3 | 5359.6 | 5371.4 | 5347.8 | 5213.3 | 4970.3 |
| 22.5° | 5913.9 | 5904.5 | 5880.9 | 5819.6 | 5758.2 | 5673.3 | 5645.0 | 5635.6 | 5626.1 | 5472.8 | 5166.1 |
| 25° | 6225.3 | 6253.6 | 6223.0 | 6166.3 | 6072.0 | 5980.0 | 5956.4 | 5965.8 | 5939.9 | 5737.0 | 5376.1 |
| 27.5° | 6619.3 | 6631.1 | 6612.2 | 6534.3 | 6454.1 | 6324.4 | 6279.6 | 6279.6 | 6270.1 | 5984.7 | 5541.2 |
| 30° | 7039.2 | 7072.2 | 7039.2 | 6975.5 | 6892.9 | 6706.5 | 6609.8 | 6600.4 | 6572.1 | 6239.5 | 5734.6 |
| 32.5° | 7461.4 | 7485.0 | 7461.4 | 7400.1 | 7305.7 | 7142.9 | 7003.8 | 6982.5 | 6944.8 | 6517.8 | 5932.8 |
| 35° | 7836.5 | 7857.7 | 7853.0 | 7867.2 | 7789.3 | 7584.1 | 7499.2 | 7489.7 | 7390.6 | 6881.1 | 6201.7 |
| 37.5° | 8246.9 | 8272.9 | 8237.5 | 8265.8 | 8235.1 | 8041.7 | 8015.8 | 7968.6 | 7827.0 | 7223.2 | 6484.8 |
| 40° | 8714.0 | 8737.6 | 8681.0 | 8692.8 | 8657.4 | 8548.9 | 8416.8 | 8353.1 | 8143.2 | 7593.5 | 6930.6 |
| 42.5° | 9214.1 | 9268.4 | 9294.3 | 9273.1 | 9190.5 | 9129.2 | 8898.0 | 8817.8 | 8643.3 | 8261.1 | 7664.3 |
| 45° | 9938.3 | 10018.5 | 10056.3 | 10002.0 | 9966.6 | 9879.3 | 9596.3 | 9499.6 | 9407.6 | 9202.3 | 8688.1 |
| 47.5° | 10719.1 | 10792.3 | 10912.6 | 10936.2 | 10964.5 | 10898.4 | 10499.8 | 10405.4 | 10421.9 | 10398.3 | 9947.8 |
| 50° | 11341.9 | 11403.2 | 11674.5 | 11964.7 | 12205.3 | 12224.2 | 11714.6 | 11613.2 | 11702.8 | 11778.3 | 11464.6 |
| 52.5° | 11794.8 | 11849.1 | 12207.6 | 12806.8 | 13351.7 | 13755.1 | 13205.5 | 13089.9 | 13163.0 | 13332.9 | 13189.0 |
| 55° | 12162.8 | 12238.3 | 12613.4 | 13533.4 | 14635.0 | 15271.9 | 14920.5 | 14774.2 | 14743.5 | 14953.5 | 15036.0 |
| 57.5° | 12356.3 | 12379.9 | 12905.9 | 14101.9 | 15576.3 | 16760.5 | 16913.8 | 16748.7 | 16456.1 | 16571.7 | 17001.1 |
| 60° | 11915.1 | 11955.2 | 12674.7 | 14248.2 | 16319.3 | 18237.2 | 19006.2 | 18869.4 | 18246.6 | 18310.3 | 18784.4 |
| 62.5° | 10695.6 | 10752.2 | 11617.9 | 13552.3 | 16380.7 | 19223.2 | 20938.2 | 20850.9 | 20015.8 | 19671.4 | 19813.0 |
| 65° | 8579.6 | 8598.4 | 9494.8 | 11830.2 | 15161.1 | 19345.9 | 22285.2 | 22263.9 | 21251.9 | 20445.2 | 19838.9 |
| 67.5° | 4892.5 | 4859.5 | 6057.8 | 8438.0 | 12512.0 | 17751.2 | 22372.4 | 22497.5 | 21652.9 | 20317.8 | 18187.6 |
| 70° | 2120.7 | 2125.4 | 2677.4 | 4163.6 | 8098.3 | 14347.2 | 20780.1 | 20994.8 | 20492.3 | 18197.1 | 14469.9 |
| 72.5° | 981.3 | 995.5 | 1233.7 | 1802.2 | 3458.2 | 8900.4 | 16944.5 | 17137.9 | 16706.2 | 14564.3 | 10528.1 |
| 75° | 693.5 | 705.3 | 823.3 | 1033.2 | 1589.9 | 3467.7 | 11334.8 | 11740.6 | 11950.5 | 10893.7 | 6937.7 |
| 77.5° | 526.0 | 542.6 | 601.5 | 717.1 | 981.3 | 1229.0 | 5423.3 | 6390.4 | 7612.4 | 6777.3 | 3573.8 |
| 80° | 335.0 | 335.0 | 398.7 | 478.9 | 599.2 | 639.3 | 1566.4 | 1856.5 | 3724.8 | 2793.0 | 1403.6 |
| 82.5° | 226.5 | 233.5 | 271.3 | 304.3 | 344.4 | 363.3 | 672.3 | 717.1 | 1075.7 | 950.7 | 577.9 |
| 85° | 120.3 | 125.0 | 141.5 | 139.2 | 165.1 | 143.9 | 283.1 | 280.7 | 393.9 | 431.7 | 219.4 |
| 87.5° | 0.0 | 0.0 | 2.4 | 2.4 | 4.7 | 7.1 | 30.7 | 33.0 | 82.6 | 132.1 | 73.1 |
| 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: P643394
 CATALOG NUMBER: GWS-SA6E-827-U-T3-W

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 3967.8 | 3967.8 | 3967.8 | 3967.8 | 3967.8 | 3967.8 | 3967.8 | 3967.8 | 3967.8 | 3967.8 | 3967.8 |
| 2.5° | 3986.7 | 3958.3 | 3972.5 | 3967.8 | 3981.9 | 3981.9 | 3956.0 | 3948.9 | 3951.3 | 3923.0 | 3913.5 |
| 5° | 4022.0 | 3989.0 | 3996.1 | 3986.7 | 4000.8 | 4012.6 | 4000.8 | 4000.8 | 4015.0 | 3993.7 | 3981.9 |
| 7.5° | 4102.2 | 4064.5 | 4064.5 | 4052.7 | 4069.2 | 4078.7 | 4069.2 | 4083.4 | 4109.3 | 4088.1 | 4076.3 |
| 10° | 4229.6 | 4184.8 | 4187.2 | 4173.0 | 4180.1 | 4175.4 | 4137.6 | 4125.8 | 4132.9 | 4114.0 | 4104.6 |
| 12.5° | 4394.8 | 4333.4 | 4333.4 | 4305.1 | 4288.6 | 4239.1 | 4161.2 | 4132.9 | 4137.6 | 4121.1 | 4114.0 |
| 15° | 4552.8 | 4496.2 | 4484.4 | 4427.8 | 4352.3 | 4260.3 | 4189.5 | 4170.7 | 4175.4 | 4158.9 | 4147.1 |
| 17.5° | 4739.2 | 4666.0 | 4623.6 | 4519.8 | 4380.6 | 4286.2 | 4215.5 | 4170.7 | 4132.9 | 4095.2 | 4085.7 |
| 20° | 4911.4 | 4819.4 | 4741.5 | 4581.1 | 4411.3 | 4281.5 | 4149.4 | 4038.5 | 3946.5 | 3897.0 | 3885.2 |
| 22.5° | 5088.3 | 4970.3 | 4833.5 | 4623.6 | 4408.9 | 4196.6 | 3953.6 | 3786.1 | 3649.3 | 3576.2 | 3590.3 |
| 25° | 5255.8 | 5107.2 | 4920.8 | 4663.7 | 4333.4 | 4007.9 | 3677.6 | 3427.6 | 3271.9 | 3215.3 | 3198.8 |
| 27.5° | 5395.0 | 5211.0 | 5001.0 | 4644.8 | 4177.7 | 3736.6 | 3300.2 | 3021.8 | 2870.9 | 2807.2 | 2790.7 |
| 30° | 5550.6 | 5343.1 | 5116.6 | 4557.5 | 3932.4 | 3356.8 | 2873.2 | 2646.8 | 2538.2 | 2476.9 | 2479.3 |
| 32.5° | 5729.9 | 5512.9 | 5279.4 | 4390.0 | 3618.7 | 2946.3 | 2521.7 | 2366.0 | 2278.8 | 2217.4 | 2208.0 |
| 35° | 5970.5 | 5755.9 | 5387.9 | 4137.6 | 3220.0 | 2568.9 | 2281.1 | 2153.7 | 2045.2 | 1965.0 | 1948.5 |
| 37.5° | 6267.8 | 6121.5 | 5399.7 | 3800.3 | 2793.0 | 2309.4 | 2108.9 | 1972.1 | 1840.0 | 1733.8 | 1722.0 |
| 40° | 6777.3 | 6609.8 | 5303.0 | 3378.0 | 2429.7 | 2141.9 | 1965.0 | 1807.0 | 1653.6 | 1535.7 | 1519.2 |
| 42.5° | 7503.9 | 7159.5 | 5095.4 | 2901.5 | 2156.1 | 2009.8 | 1828.2 | 1627.7 | 1472.0 | 1389.4 | 1377.6 |
| 45° | 8428.6 | 7772.8 | 4784.0 | 2453.3 | 1953.2 | 1880.1 | 1684.3 | 1474.4 | 1391.8 | 1332.8 | 1321.0 |
| 47.5° | 9560.9 | 8487.6 | 4425.4 | 2104.2 | 1795.2 | 1762.1 | 1538.0 | 1422.5 | 1349.3 | 1299.8 | 1288.0 |
| 50° | 10914.9 | 9398.1 | 4130.5 | 1830.6 | 1653.6 | 1625.3 | 1490.9 | 1391.8 | 1332.8 | 1292.7 | 1283.3 |
| 52.5° | 12460.1 | 10410.1 | 3986.7 | 1634.8 | 1531.0 | 1502.7 | 1474.4 | 1384.7 | 1335.2 | 1304.5 | 1292.7 |
| 55° | 14064.2 | 11476.4 | 3852.2 | 1483.8 | 1427.2 | 1443.7 | 1476.7 | 1408.3 | 1370.6 | 1330.5 | 1318.7 |
| 57.5° | 15614.0 | 12476.6 | 3521.9 | 1365.8 | 1351.7 | 1415.4 | 1488.5 | 1431.9 | 1387.1 | 1347.0 | 1332.8 |
| 60° | 16682.6 | 13023.9 | 2962.9 | 1271.5 | 1295.1 | 1380.0 | 1457.8 | 1396.5 | 1339.9 | 1323.4 | 1316.3 |
| 62.5° | 16970.4 | 12957.8 | 2300.0 | 1174.8 | 1226.7 | 1302.1 | 1377.6 | 1337.5 | 1278.6 | 1304.5 | 1306.9 |
| 65° | 16298.1 | 12250.1 | 1726.8 | 1080.4 | 1137.0 | 1200.7 | 1295.1 | 1278.6 | 1257.3 | 1328.1 | 1330.5 |
| 67.5° | 14394.4 | 10511.6 | 1316.3 | 997.8 | 1045.0 | 1122.9 | 1269.1 | 1337.5 | 1342.3 | 1431.9 | 1422.5 |
| 70° | 10891.3 | 7853.0 | 1030.9 | 920.0 | 974.3 | 1122.9 | 1351.7 | 1382.4 | 1325.7 | 1408.3 | 1389.4 |
| 72.5° | 7529.8 | 5182.6 | 877.5 | 851.6 | 887.0 | 1071.0 | 1349.3 | 1349.3 | 1288.0 | 1288.0 | 1252.6 |
| 75° | 4677.8 | 3047.8 | 764.3 | 764.3 | 764.3 | 936.5 | 1311.6 | 1243.2 | 1134.7 | 1085.1 | 1056.8 |
| 77.5° | 2309.4 | 1481.4 | 641.6 | 665.2 | 639.3 | 783.2 | 1071.0 | 1016.7 | 950.7 | 898.8 | 879.9 |
| 80° | 986.0 | 740.7 | 519.0 | 544.9 | 514.3 | 589.7 | 849.2 | 837.4 | 773.7 | 705.3 | 684.1 |
| 82.5° | 452.9 | 382.2 | 415.2 | 427.0 | 375.1 | 443.5 | 620.4 | 620.4 | 585.0 | 490.7 | 455.3 |
| 85° | 193.4 | 202.9 | 287.8 | 287.8 | 235.9 | 250.1 | 332.6 | 316.1 | 283.1 | 231.2 | 212.3 |
| 87.5° | 66.1 | 99.1 | 146.3 | 127.4 | 49.5 | 21.2 | 11.8 | 4.7 | 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 |

REPORT NUMBER: SP1-2407-157-9

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 (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)