

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: P635248

Luminaire Tested: GWS-SA3D-735-U-T2R-W-GRSWH

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P635248
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-13)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA3D-735-U-T2R-W-GRSWH
Description: GALLEON WALL SLIM LUMINAIRE. (3) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II ROADWAY OPTICS W/ FACTORY INSTALLED GLARE SHIELD, WH
Light Source: (48) 3500K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 15275.9 lumens
Efficiency: N/A
Efficacy: 126.5 lumens/watt
Luminous Opening: Rectangular (W 1.5' x L: 0.5' x H: 0')
IES Classification: Type II - Short
BUG Rating: B2 - 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

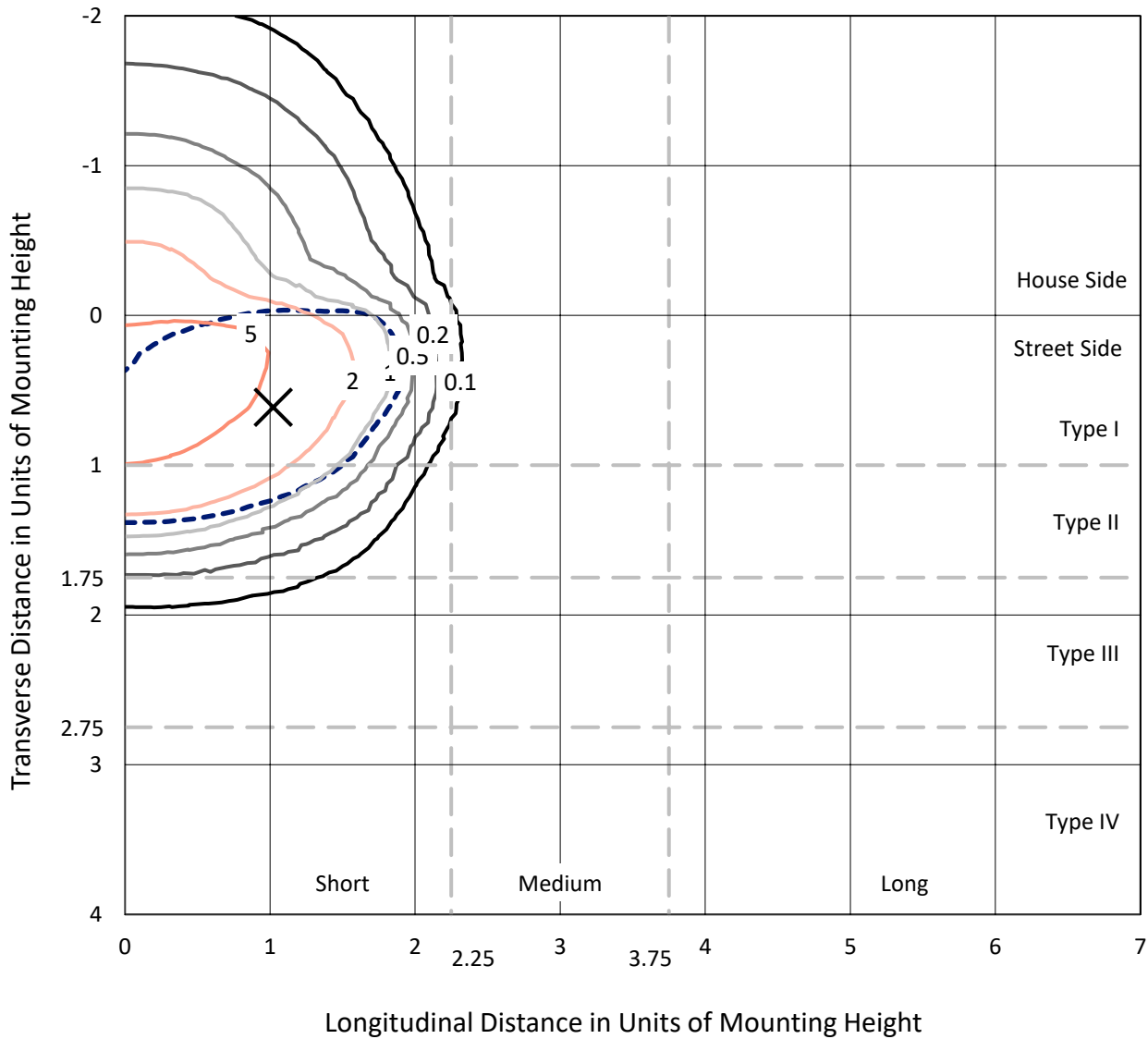


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Iso-Footcandle Lines of Horizontal Illumination

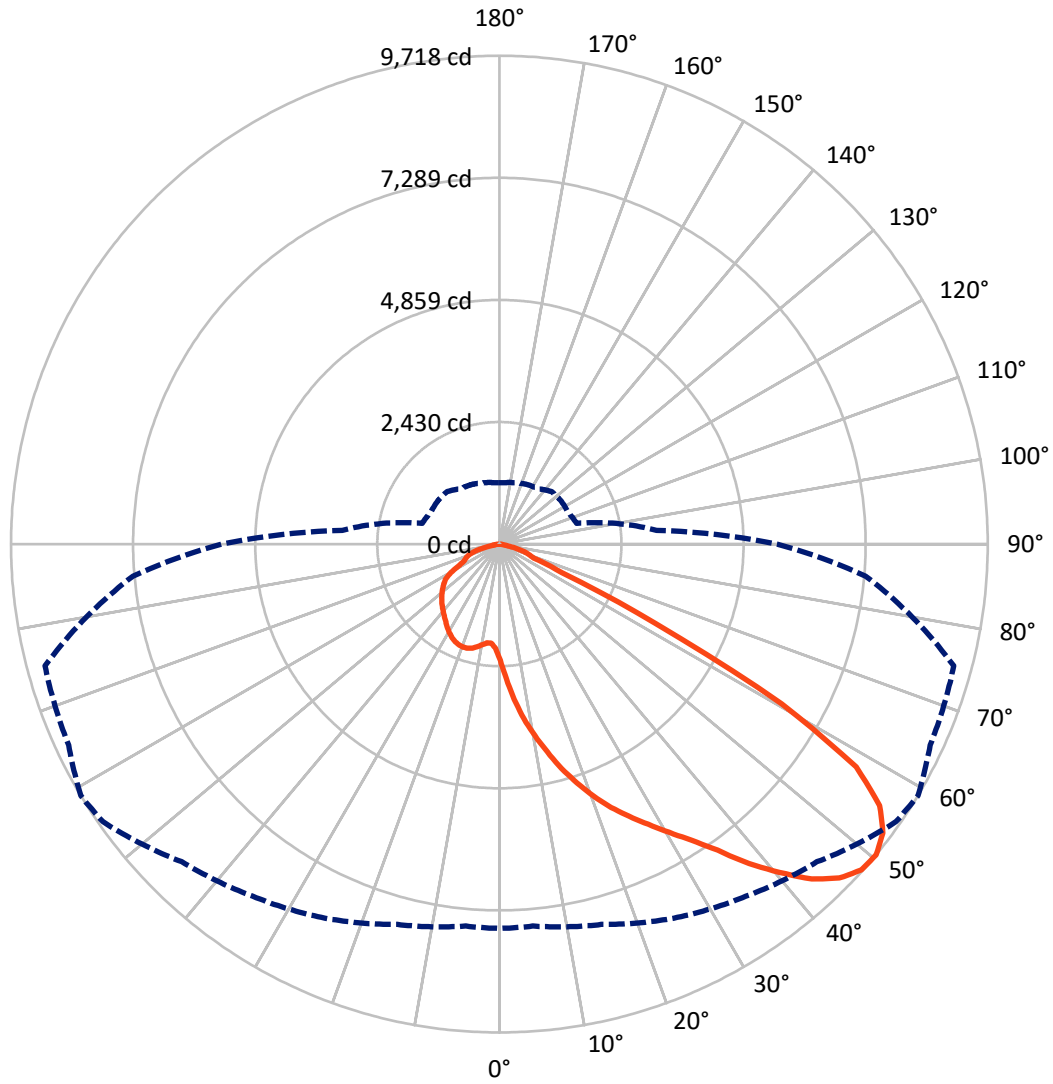
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 7.3 fc
 Type II - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 59-Deg Lateral - - - Horizontal Cone Through 50-Deg Vertical

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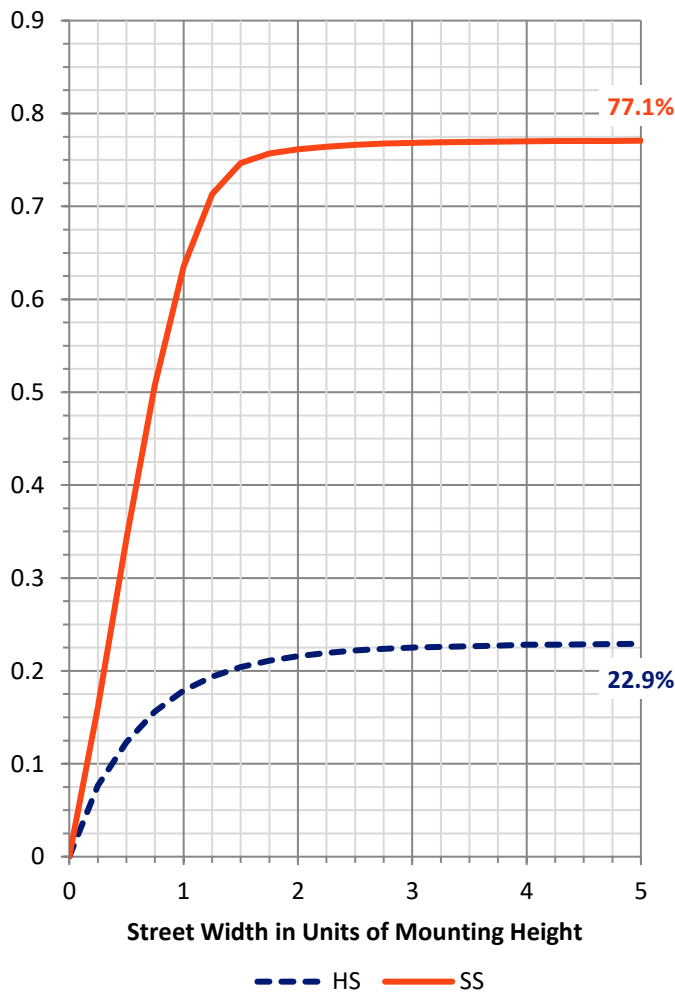
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 3513.7 | 0.0 | 3513.7 |
| | % Fixture | 23.0 | 0.0 | 23.0 |
| Street Side | Lumens | 11762.2 | 0.0 | 11762.2 |
| | % Fixture | 77.0 | 0.0 | 77.0 |
| Total | Lumens | 15275.9 | 0.0 | 15275.9 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 259.6 | 1.7 |
| 10°-20° | 942.5 | 6.2 |
| 20°-30° | 1784.8 | 11.7 |
| 30°-40° | 2959.7 | 19.4 |
| 40°-50° | 4043.1 | 26.5 |
| 50°-60° | 3670.1 | 24.0 |
| 60°-70° | 1222.2 | 8.0 |
| 70°-80° | 356.5 | 2.3 |
| 80°-90° | 37.4 | 0.2 |
| 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° | 15275.9 | 100.0 |
| 0°-180° | 15275.9 | 100.0 |

Coefficient of Utilization



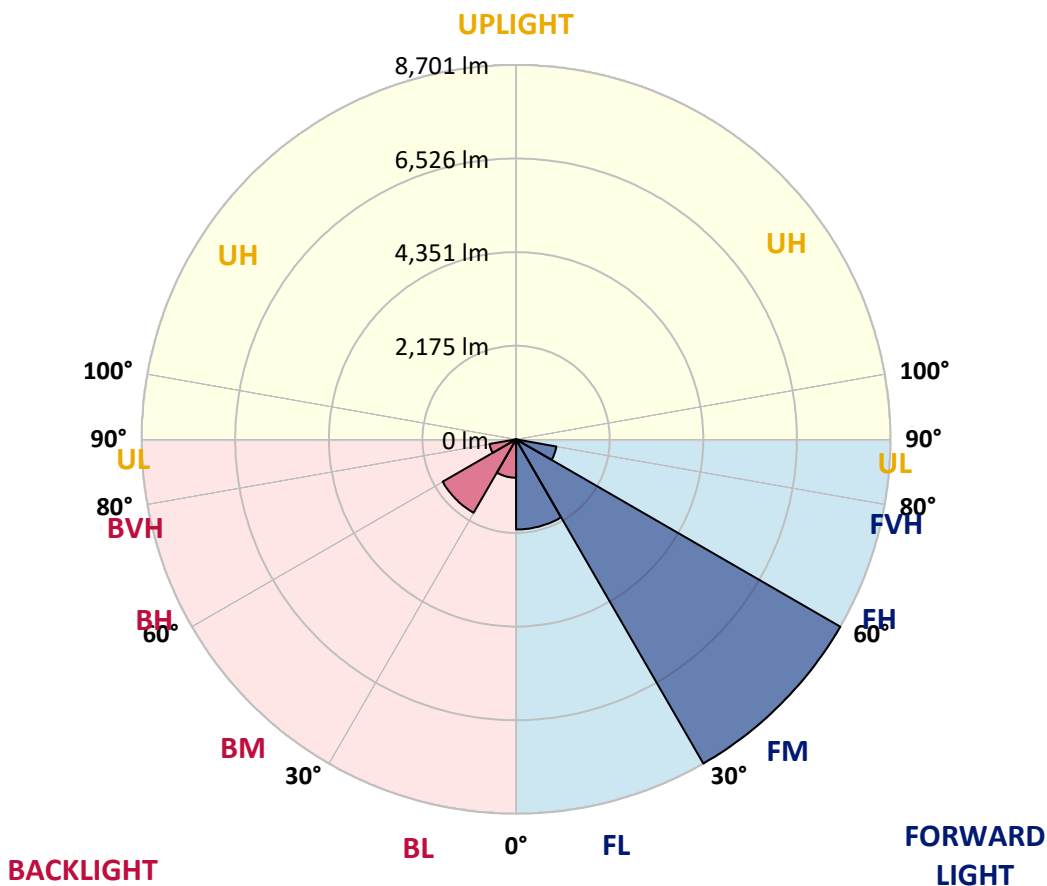
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CATALOG NUMBER: GWS-SA3D-735-U-T2R-W-GRSWH

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 2094.7 | 13.7 | | | |
| FM (30°-60°) | 8701.3 | 57.0 | | | |
| FH (60°-80°) | 951.5 | 6.2 | | | G1/1800 |
| FVH (80°-90°) | 14.6 | 0.1 | | | G1/100 |
| BL (0°-30°) | 892.2 | 5.8 | B2/1000 | | |
| BM (30°-60°) | 1971.6 | 12.9 | B2/2500 | | |
| BH (60°-80°) | 627.2 | 4.1 | B2/1000 | | G2/1000 |
| BVH (80°-90°) | 22.8 | 0.1 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B2-U0-G2
 Type II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 59° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2314.4 | 2314.4 | 2314.4 | 2314.4 | 2314.4 | 2314.4 | 2314.4 | 2314.4 | 2314.4 | 2314.4 | 2314.4 |
| 2.5° | 2998.8 | 3021.2 | 2986.3 | 2988.8 | 2901.7 | 2861.9 | 2749.9 | 2684.0 | 2640.4 | 2518.5 | 2407.7 |
| 5° | 3603.5 | 3577.4 | 3550.0 | 3533.8 | 3457.9 | 3350.9 | 3211.6 | 3100.8 | 2998.8 | 2759.9 | 2529.7 |
| 7.5° | 3974.3 | 3960.6 | 3942.0 | 3932.0 | 3857.3 | 3745.4 | 3606.0 | 3511.4 | 3363.4 | 3039.8 | 2677.7 |
| 10° | 4289.1 | 4272.9 | 4261.7 | 4269.2 | 4208.2 | 4136.1 | 3984.3 | 3876.0 | 3709.3 | 3336.0 | 2856.9 |
| 12.5° | 4533.0 | 4541.7 | 4545.4 | 4585.3 | 4559.1 | 4515.6 | 4358.8 | 4244.3 | 4058.9 | 3648.3 | 3067.2 |
| 15° | 4725.9 | 4723.4 | 4766.9 | 4842.8 | 4885.1 | 4857.8 | 4732.1 | 4636.3 | 4409.8 | 3955.6 | 3293.7 |
| 17.5° | 4770.7 | 4773.2 | 4841.6 | 4974.7 | 5112.8 | 5180.0 | 5109.1 | 4994.6 | 4770.7 | 4259.3 | 3528.8 |
| 20° | 4806.7 | 4811.7 | 4882.7 | 5034.5 | 5236.0 | 5423.9 | 5435.1 | 5353.0 | 5160.1 | 4587.8 | 3767.8 |
| 22.5° | 5034.5 | 5045.7 | 5064.3 | 5160.1 | 5341.8 | 5579.5 | 5710.1 | 5692.7 | 5530.9 | 4932.4 | 4025.3 |
| 25° | 5633.0 | 5599.4 | 5508.5 | 5481.2 | 5550.8 | 5743.7 | 5966.4 | 6000.0 | 5920.4 | 5311.9 | 4302.8 |
| 27.5° | 6372.1 | 6336.0 | 6201.6 | 6059.8 | 5909.2 | 5976.4 | 6214.1 | 6314.8 | 6316.1 | 5730.0 | 4581.5 |
| 30° | 7042.8 | 7014.1 | 6904.6 | 6701.8 | 6441.8 | 6344.7 | 6520.2 | 6655.8 | 6736.7 | 6212.8 | 4898.8 |
| 32.5° | 7616.4 | 7590.3 | 7442.2 | 7276.7 | 7022.9 | 6827.5 | 6891.0 | 7021.6 | 7210.7 | 6837.5 | 5293.3 |
| 35° | 8099.2 | 8073.0 | 7931.2 | 7764.5 | 7529.3 | 7412.3 | 7389.9 | 7479.5 | 7724.6 | 7489.5 | 5746.2 |
| 37.5° | 8491.1 | 8465.0 | 8316.9 | 8160.2 | 7981.0 | 7988.4 | 8022.0 | 8065.6 | 8206.2 | 8187.5 | 6230.2 |
| 40° | 8745.0 | 8717.6 | 8611.8 | 8499.8 | 8386.6 | 8476.2 | 8642.9 | 8590.7 | 8665.3 | 8751.2 | 6675.7 |
| 42.5° | 8858.2 | 8823.4 | 8762.4 | 8737.5 | 8702.7 | 8842.0 | 9163.1 | 9110.8 | 9021.2 | 9127.0 | 7006.7 |
| 45° | 8745.0 | 8715.1 | 8713.9 | 8789.8 | 8870.6 | 9049.8 | 9522.7 | 9480.4 | 9253.9 | 9308.6 | 7204.5 |
| 47.5° | 8397.8 | 8371.7 | 8442.6 | 8641.7 | 8840.8 | 9102.1 | 9683.2 | 9690.6 | 9419.4 | 9384.5 | 7332.7 |
| 50° | 7647.5 | 7630.1 | 7835.4 | 8212.4 | 8555.8 | 8939.1 | 9632.2 | 9718.0 | 9459.2 | 9360.9 | 7316.5 |
| 52.5° | 6122.0 | 6202.9 | 6649.6 | 7279.2 | 7946.1 | 8652.9 | 9443.0 | 9555.0 | 9267.6 | 9205.4 | 7229.4 |
| 55° | 4190.8 | 4228.1 | 4674.9 | 5594.4 | 6652.1 | 8033.2 | 9008.8 | 9181.7 | 9041.1 | 9179.2 | 7320.2 |
| 57.5° | 2170.1 | 2199.9 | 2552.1 | 3368.3 | 4511.8 | 6348.4 | 7803.0 | 8370.4 | 8584.5 | 9311.1 | 7602.7 |
| 60° | 890.9 | 915.8 | 1061.4 | 1455.8 | 2275.8 | 3696.8 | 5615.5 | 6456.7 | 6959.4 | 8503.6 | 6751.6 |
| 62.5° | 647.0 | 659.5 | 729.2 | 868.5 | 1192.0 | 1811.7 | 3178.0 | 3487.8 | 3841.2 | 5329.4 | 4286.6 |
| 65° | 545.0 | 558.7 | 614.7 | 699.3 | 869.8 | 1111.2 | 1357.5 | 1365.0 | 1504.4 | 2171.3 | 1589.0 |
| 67.5° | 456.7 | 469.1 | 518.9 | 591.0 | 703.0 | 788.9 | 729.2 | 730.4 | 727.9 | 787.6 | 761.5 |
| 70° | 355.9 | 365.8 | 415.6 | 492.7 | 551.2 | 506.4 | 569.9 | 630.9 | 604.7 | 628.4 | 664.5 |
| 72.5° | 260.1 | 271.3 | 314.8 | 373.3 | 358.4 | 360.8 | 461.6 | 523.9 | 508.9 | 535.1 | 568.6 |
| 75° | 187.9 | 195.4 | 217.8 | 186.6 | 196.6 | 237.7 | 324.8 | 358.4 | 373.3 | 395.7 | 425.6 |
| 77.5° | 61.0 | 61.0 | 68.4 | 85.9 | 107.0 | 131.9 | 165.5 | 179.2 | 201.6 | 226.5 | 247.6 |
| 80° | 31.1 | 32.4 | 38.6 | 47.3 | 59.7 | 75.9 | 97.1 | 103.3 | 114.5 | 128.2 | 136.9 |
| 82.5° | 14.9 | 16.2 | 18.7 | 23.6 | 31.1 | 39.8 | 53.5 | 59.7 | 67.2 | 75.9 | 82.1 |
| 85° | 3.7 | 3.7 | 5.0 | 7.5 | 10.0 | 14.9 | 19.9 | 23.6 | 29.9 | 36.1 | 39.8 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 3.7 | 5.0 | 6.2 | 7.5 | 10.0 |
| 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: P635248

CATALOG NUMBER: GWS-SA3D-735-U-T2R-W-GRSWH

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2314.4 | 2314.4 | 2314.4 | 2314.4 | 2314.4 | 2314.4 | 2314.4 | 2314.4 | 2314.4 | 2314.4 | 2314.4 |
| 2.5° | 2358.0 | 2288.3 | 2198.7 | 2122.8 | 2053.1 | 1999.6 | 1953.6 | 1931.2 | 1910.0 | 1895.1 | 1900.1 |
| 5° | 2422.7 | 2303.2 | 2136.5 | 2020.8 | 1949.8 | 1913.7 | 1888.9 | 1876.4 | 1873.9 | 1864.0 | 1860.2 |
| 7.5° | 2517.2 | 2346.8 | 2124.0 | 2007.1 | 1959.8 | 1941.1 | 1927.4 | 1920.0 | 1923.7 | 1913.7 | 1910.0 |
| 10° | 2634.2 | 2418.9 | 2155.1 | 2051.9 | 2010.8 | 1997.1 | 1982.2 | 1972.2 | 1967.2 | 1952.3 | 1949.8 |
| 12.5° | 2779.8 | 2508.5 | 2211.1 | 2109.1 | 2068.0 | 2044.4 | 2024.5 | 2007.1 | 1995.9 | 1977.2 | 1972.2 |
| 15° | 2936.6 | 2608.1 | 2277.1 | 2165.1 | 2116.6 | 2081.7 | 2049.4 | 2023.2 | 2003.3 | 1978.4 | 1974.7 |
| 17.5° | 3107.0 | 2712.6 | 2331.8 | 2203.7 | 2141.4 | 2095.4 | 2048.1 | 2009.6 | 1982.2 | 1949.8 | 1946.1 |
| 20° | 3285.0 | 2818.4 | 2372.9 | 2222.3 | 2142.7 | 2080.5 | 2017.0 | 1966.0 | 1931.2 | 1898.8 | 1896.3 |
| 22.5° | 3469.1 | 2915.4 | 2397.8 | 2217.4 | 2122.8 | 2045.6 | 1969.7 | 1912.5 | 1871.4 | 1832.9 | 1830.4 |
| 25° | 3654.5 | 3008.7 | 2404.0 | 2197.4 | 2083.0 | 1993.4 | 1917.5 | 1850.3 | 1804.2 | 1760.7 | 1755.7 |
| 27.5° | 3842.4 | 3087.1 | 2389.1 | 2157.6 | 2029.5 | 1932.4 | 1856.5 | 1790.6 | 1743.3 | 1699.7 | 1692.3 |
| 30° | 4042.7 | 3154.3 | 2356.7 | 2105.4 | 1967.2 | 1867.7 | 1793.0 | 1743.3 | 1698.5 | 1654.9 | 1647.5 |
| 32.5° | 4256.8 | 3212.8 | 2310.7 | 2041.9 | 1895.1 | 1803.0 | 1748.2 | 1703.5 | 1658.7 | 1620.1 | 1612.6 |
| 35° | 4511.8 | 3251.4 | 2242.2 | 1959.8 | 1827.9 | 1755.7 | 1718.4 | 1666.1 | 1611.4 | 1569.1 | 1565.3 |
| 37.5° | 4775.6 | 3281.2 | 2160.1 | 1881.4 | 1769.4 | 1728.3 | 1697.2 | 1626.3 | 1557.9 | 1506.9 | 1500.6 |
| 40° | 5030.7 | 3306.1 | 2058.1 | 1808.0 | 1715.9 | 1708.4 | 1666.1 | 1577.8 | 1459.6 | 1402.3 | 1397.4 |
| 42.5° | 5268.4 | 3313.6 | 1951.1 | 1729.6 | 1667.4 | 1663.6 | 1616.4 | 1479.5 | 1388.6 | 1352.6 | 1347.6 |
| 45° | 5431.4 | 3307.4 | 1840.3 | 1656.2 | 1618.8 | 1598.9 | 1549.2 | 1408.6 | 1352.6 | 1320.2 | 1314.0 |
| 47.5° | 5552.1 | 3275.0 | 1715.9 | 1579.0 | 1564.1 | 1536.7 | 1429.7 | 1363.8 | 1311.5 | 1279.1 | 1272.9 |
| 50° | 5530.9 | 3140.6 | 1590.2 | 1504.4 | 1498.1 | 1474.5 | 1342.6 | 1307.8 | 1261.7 | 1226.9 | 1221.9 |
| 52.5° | 5421.4 | 2885.5 | 1462.1 | 1422.2 | 1434.7 | 1388.6 | 1280.4 | 1240.6 | 1200.8 | 1160.9 | 1152.2 |
| 55° | 5448.8 | 2701.4 | 1365.0 | 1342.6 | 1365.0 | 1260.5 | 1210.7 | 1168.4 | 1131.1 | 1092.5 | 1085.0 |
| 57.5° | 5568.3 | 2519.7 | 1261.7 | 1256.7 | 1280.4 | 1162.2 | 1121.1 | 1067.6 | 1014.1 | 983.0 | 983.0 |
| 60° | 4676.1 | 1836.6 | 1080.1 | 1092.5 | 1146.0 | 1082.5 | 1046.5 | 991.7 | 933.2 | 905.9 | 905.9 |
| 62.5° | 2764.8 | 1152.2 | 895.9 | 882.2 | 915.8 | 955.6 | 975.5 | 930.7 | 861.1 | 825.0 | 826.2 |
| 65° | 1218.2 | 838.7 | 790.1 | 778.9 | 769.0 | 796.4 | 851.1 | 854.8 | 781.4 | 739.1 | 740.4 |
| 67.5° | 750.3 | 759.0 | 739.1 | 730.4 | 721.7 | 716.7 | 711.7 | 714.2 | 694.3 | 655.7 | 654.5 |
| 70° | 676.9 | 700.5 | 686.9 | 679.4 | 668.2 | 659.5 | 629.6 | 581.1 | 547.5 | 537.5 | 548.7 |
| 72.5° | 582.3 | 614.7 | 607.2 | 603.5 | 589.8 | 568.6 | 528.8 | 481.5 | 441.7 | 416.8 | 421.8 |
| 75° | 439.2 | 465.4 | 469.1 | 470.3 | 455.4 | 435.5 | 394.4 | 354.6 | 319.8 | 293.7 | 299.9 |
| 77.5° | 252.6 | 267.5 | 271.3 | 275.0 | 263.8 | 256.3 | 229.0 | 200.3 | 181.7 | 154.3 | 161.8 |
| 80° | 140.6 | 146.8 | 146.8 | 148.1 | 141.9 | 133.1 | 114.5 | 98.3 | 89.6 | 77.1 | 78.4 |
| 82.5° | 84.6 | 87.1 | 88.3 | 89.6 | 85.9 | 77.1 | 63.5 | 52.3 | 47.3 | 41.1 | 39.8 |
| 85° | 41.1 | 43.6 | 43.6 | 44.8 | 38.6 | 33.6 | 26.1 | 19.9 | 17.4 | 12.4 | 13.7 |
| 87.5° | 10.0 | 11.2 | 11.2 | 10.0 | 8.7 | 6.2 | 3.7 | 1.2 | 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 |

LM-79-08: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

All Brands

Data applicable to all product families using SA light engines

Report Number: SP1-2101-121-7

Luminaire Tested: IFLD-S-SA2A-735-U-T2

Test Date: 03/04/2021

Test Information

Test Method: LM-79-08
 Report Number: SP1-2101-121-7
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1
 Measurement Geometry: 4π
 Issue Date: 03/04/2021
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: STREETWORKS
 Catalog Number: **IFLD-S-SA2A-735-U-T2**
 Description: STREETWORKS INF FLOOD

PROGRAMMED @ 615mA.

Spectral Parameters

CCT (K): 3388
 CIE u': 0.2371
 CIE v': 0.5177
 Duv: 0.0032
 CIE x: 0.4153
 CIE y: 0.4030
 CIE z: 0.1817
 Peak Wavelength (nm): 590
 Dominant Wavelength (nm): 580
 Purity: 45.7
 Rf: 76.9
 Rg: 94.4

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 73.1 | | |
| R1: | 68.9 | R9: | -34.6 |
| R2: | 81.1 | R10: | 57.8 |
| R3: | 93.1 | R11: | 68.6 |
| R4: | 71.6 | R12: | 53.9 |
| R5: | 69.4 | R13: | 70.9 |
| R6: | 75.0 | R14: | 96.2 |
| R7: | 79.5 | | |
| R8: | 46.4 | | |

Test Conditions

Stabilization Time: 81M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.0/30%
 Sphere Temperature (°C): 24.1



REPORT NUMBER: SP1-2101-121-7

| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 1/31/2021 | 7/31/2021 |
| Power Meter | IN0071 | 12/1/2020 | 12/1/2021 |
| AC Power Source | IN0063 | 12/1/2020 | 12/1/2021 |
| DC Power Source | IN0208 | 12/1/2020 | 12/1/2021 |
| Sphere Thermometer | IN0085 | 12/1/2020 | 12/1/2021 |
| Room Thermometer | IN0046 | 12/1/2020 | 12/1/2021 |

REPORT NUMBER: SP1-2101-121-7

CIE 1931 Chromaticity Diagram



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



Point lies inside the ANSI 3500K 4-step quadrangle

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Photopic Flux vs. Wavelength



#####

| λ (nm) | Power (µW/nm) | Lumens (Φ/nm) | λ (nm) | Power (µW/nm) | Lumens (Φ/nm) | λ (nm) | Power (µW/nm) | Lumens (Φ/nm) | λ (nm) | Power (µW/nm) | Lumens (Φ/nm) | λ (nm) | Power (µW/nm) | Lumens (Φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 2672 | 0.0 | 490 | 34553 | 4.9 | 620 | 136720 | 35.6 | 750 | 5870 | 0.0 | 880 | 4216 | 0.0 |
| 365 | 2252 | 0.0 | 495 | 44336 | 8.0 | 625 | 126308 | 27.9 | 755 | 5421 | 0.0 | 885 | 4132 | 0.0 |
| 370 | 2217 | 0.0 | 500 | 54643 | 12.1 | 630 | 114625 | 20.7 | 760 | 5097 | 0.0 | 890 | 3992 | 0.0 |
| 375 | 2697 | 0.0 | 505 | 64676 | 18.1 | 635 | 103216 | 15.5 | 765 | 4626 | 0.0 | 895 | 3214 | 0.0 |
| 380 | 3039 | 0.0 | 510 | 73825 | 25.4 | 640 | 92605 | 11.1 | 770 | 3782 | 0.0 | 900 | 2580 | 0.0 |
| 385 | 2655 | 0.0 | 515 | 81872 | 33.9 | 645 | 83234 | 8.0 | 775 | 3506 | 0.0 | 905 | 1776 | 0.0 |
| 390 | 2357 | 0.0 | 520 | 88574 | 43.0 | 650 | 73263 | 5.4 | 780 | 3507 | 0.0 | 910 | 3995 | 0.0 |
| 395 | 2186 | 0.0 | 525 | 93289 | 50.1 | 655 | 64627 | 3.7 | 785 | 3267 | 0.0 | 915 | 4288 | 0.0 |
| 400 | 2015 | 0.0 | 530 | 98393 | 57.9 | 660 | 56614 | 2.4 | 790 | 2849 | 0.0 | 920 | 2446 | 0.0 |
| 405 | 2234 | 0.0 | 535 | 103269 | 64.0 | 665 | 49537 | 1.6 | 795 | 3037 | 0.0 | 925 | 3009 | 0.0 |
| 410 | 3412 | 0.0 | 540 | 107316 | 69.9 | 670 | 42866 | 0.9 | 800 | 2716 | 0.0 | 930 | 3026 | 0.0 |
| 415 | 6135 | 0.0 | 545 | 113101 | 75.3 | 675 | 36708 | 0.6 | 805 | 2648 | 0.0 | 935 | 4734 | 0.0 |
| 420 | 12146 | 0.0 | 550 | 120690 | 82.0 | 680 | 31814 | 0.4 | 810 | 3187 | 0.0 | 940 | 3719 | 0.0 |
| 425 | 23983 | 0.1 | 555 | 128583 | 87.8 | 685 | 27485 | 0.2 | 815 | 2931 | 0.0 | 945 | 1480 | 0.0 |
| 430 | 42142 | 0.3 | 560 | 137796 | 93.6 | 690 | 23698 | 0.1 | 820 | 2717 | 0.0 | 950 | 3450 | 0.0 |
| 435 | 68228 | 0.8 | 565 | 146577 | 97.5 | 695 | 20309 | 0.1 | 825 | 2236 | 0.0 | 955 | 5051 | 0.0 |
| 440 | 99323 | 1.6 | 570 | 154581 | 100.5 | 700 | 17890 | 0.1 | 830 | 2628 | 0.0 | 960 | 3176 | 0.0 |
| 445 | 115584 | 2.4 | 575 | 162633 | 101.2 | 705 | 15500 | 0.0 | 835 | 3140 | 0.0 | 965 | 5178 | 0.0 |
| 450 | 94997 | 2.5 | 580 | 168101 | 99.9 | 710 | 13699 | 0.0 | 840 | 3675 | 0.0 | 970 | 6385 | 0.0 |
| 455 | 61433 | 2.1 | 585 | 173145 | 96.2 | 715 | 12398 | 0.0 | 845 | 3283 | 0.0 | 975 | 3810 | 0.0 |
| 460 | 43373 | 1.8 | 590 | 174675 | 90.3 | 720 | 11147 | 0.0 | 850 | 3055 | 0.0 | 980 | 4322 | 0.0 |
| 465 | 32472 | 1.7 | 595 | 173724 | 82.3 | 725 | 9761 | 0.0 | 855 | 2932 | 0.0 | 985 | 4200 | 0.0 |
| 470 | 24257 | 1.5 | 600 | 171241 | 73.8 | 730 | 8651 | 0.0 | 860 | 3382 | 0.0 | 990 | 4661 | 0.0 |
| 475 | 21690 | 1.7 | 605 | 165134 | 64.0 | 735 | 7730 | 0.0 | 865 | 2605 | 0.0 | 995 | 6746 | 0.0 |
| 480 | 23173 | 2.2 | 610 | 156652 | 53.8 | 740 | 6847 | 0.0 | 870 | 3325 | 0.0 | 1000 | 4150 | 0.0 |
| 485 | 27564 | 3.3 | 615 | 147879 | 44.6 | 745 | 6124 | 0.0 | 875 | 3325 | 0.0 | | | |

REPORT NUMBER: SP1-2101-121-7

Scotopic Flux vs. Wavelength



Scotopic Lumens: 12126

S/P: 1.36

| 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 | 2672 | 0.0 | 490 | 34553 | 53.2 | 620 | 136720 | 1.7 | 750 | 5870 | 0.0 | 880 | 4216 | 0.0 |
| 365 | 2252 | 0.0 | 495 | 44336 | 71.7 | 625 | 126308 | 1.1 | 755 | 5421 | 0.0 | 885 | 4132 | 0.0 |
| 370 | 2217 | 0.0 | 500 | 54643 | 91.4 | 630 | 114625 | 0.6 | 760 | 5097 | 0.0 | 890 | 3992 | 0.0 |
| 375 | 2697 | 0.0 | 505 | 64676 | 110.0 | 635 | 103216 | 0.4 | 765 | 4626 | 0.0 | 895 | 3214 | 0.0 |
| 380 | 3039 | 0.0 | 510 | 73825 | 125.1 | 640 | 92605 | 0.2 | 770 | 3782 | 0.0 | 900 | 2580 | 0.0 |
| 385 | 2655 | 0.0 | 515 | 81872 | 135.7 | 645 | 83234 | 0.1 | 775 | 3506 | 0.0 | 905 | 1776 | 0.0 |
| 390 | 2357 | 0.0 | 520 | 88574 | 140.8 | 650 | 73263 | 0.1 | 780 | 3507 | 0.0 | 910 | 3995 | 0.0 |
| 395 | 2186 | 0.0 | 525 | 93289 | 139.6 | 655 | 64627 | 0.1 | 785 | 3267 | 0.0 | 915 | 4288 | 0.0 |
| 400 | 2015 | 0.0 | 530 | 98393 | 135.7 | 660 | 56614 | 0.0 | 790 | 2849 | 0.0 | 920 | 2446 | 0.0 |
| 405 | 2234 | 0.1 | 535 | 103269 | 128.7 | 665 | 49537 | 0.0 | 795 | 3037 | 0.0 | 925 | 3009 | 0.0 |
| 410 | 3412 | 0.2 | 540 | 107316 | 118.6 | 670 | 42866 | 0.0 | 800 | 2716 | 0.0 | 930 | 3026 | 0.0 |
| 415 | 6135 | 0.6 | 545 | 113101 | 108.4 | 675 | 36708 | 0.0 | 805 | 2648 | 0.0 | 935 | 4734 | 0.0 |
| 420 | 12146 | 2.0 | 550 | 120690 | 98.7 | 680 | 31814 | 0.0 | 810 | 3187 | 0.0 | 940 | 3719 | 0.0 |
| 425 | 23983 | 5.9 | 555 | 128583 | 87.9 | 685 | 27485 | 0.0 | 815 | 2931 | 0.0 | 945 | 1480 | 0.0 |
| 430 | 42142 | 14.3 | 560 | 137796 | 77.0 | 690 | 23698 | 0.0 | 820 | 2717 | 0.0 | 950 | 3450 | 0.0 |
| 435 | 68228 | 30.5 | 565 | 146577 | 65.8 | 695 | 20309 | 0.0 | 825 | 2236 | 0.0 | 955 | 5051 | 0.0 |
| 440 | 99323 | 55.5 | 570 | 154581 | 54.6 | 700 | 17890 | 0.0 | 830 | 2628 | 0.0 | 960 | 3176 | 0.0 |
| 445 | 115584 | 77.4 | 575 | 162633 | 44.3 | 705 | 15500 | 0.0 | 835 | 3140 | 0.0 | 965 | 5178 | 0.0 |
| 450 | 94997 | 73.6 | 580 | 168101 | 34.6 | 710 | 13699 | 0.0 | 840 | 3675 | 0.0 | 970 | 6385 | 0.0 |
| 455 | 61433 | 53.7 | 585 | 173145 | 26.5 | 715 | 12398 | 0.0 | 845 | 3283 | 0.0 | 975 | 3810 | 0.0 |
| 460 | 43373 | 41.9 | 590 | 174675 | 19.5 | 720 | 11147 | 0.0 | 850 | 3055 | 0.0 | 980 | 4322 | 0.0 |
| 465 | 32472 | 34.3 | 595 | 173724 | 13.9 | 725 | 9761 | 0.0 | 855 | 2932 | 0.0 | 985 | 4200 | 0.0 |
| 470 | 24257 | 27.9 | 600 | 171241 | 9.7 | 730 | 8651 | 0.0 | 860 | 3382 | 0.0 | 990 | 4661 | 0.0 |
| 475 | 21690 | 27.1 | 605 | 165134 | 6.5 | 735 | 7730 | 0.0 | 865 | 2605 | 0.0 | 995 | 6746 | 0.0 |
| 480 | 23173 | 31.3 | 610 | 156652 | 4.2 | 740 | 6847 | 0.0 | 870 | 3325 | 0.0 | 1000 | 4150 | 0.0 |
| 485 | 27564 | 40.0 | 615 | 147879 | 2.7 | 745 | 6124 | 0.0 | 875 | 3325 | 0.0 | | | |

REPORT NUMBER: SP1-2101-121-7

Melanopic Flux vs. Wavelength



Melanopic Lumens: 4490.7 M/P: 0.5

| 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 | 2672 | 0.0 | 490 | 34553 | 28.8 | 620 | 136720 | 0.1 | 750 | 5870 | 0.0 | 880 | 4216 | 0.0 |
| 365 | 2252 | 0.0 | 495 | 44336 | 36.6 | 625 | 126308 | 0.1 | 755 | 5421 | 0.0 | 885 | 4132 | 0.0 |
| 370 | 2217 | 0.0 | 500 | 54643 | 43.9 | 630 | 114625 | 0.0 | 760 | 5097 | 0.0 | 890 | 3992 | 0.0 |
| 375 | 2697 | 0.0 | 505 | 64676 | 49.6 | 635 | 103216 | 0.0 | 765 | 4626 | 0.0 | 895 | 3214 | 0.0 |
| 380 | 3039 | 0.0 | 510 | 73825 | 53.0 | 640 | 92605 | 0.0 | 770 | 3782 | 0.0 | 900 | 2580 | 0.0 |
| 385 | 2655 | 0.0 | 515 | 81872 | 53.5 | 645 | 83234 | 0.0 | 775 | 3506 | 0.0 | 905 | 1776 | 0.0 |
| 390 | 2357 | 0.0 | 520 | 88574 | 51.6 | 650 | 73263 | 0.0 | 780 | 3507 | 0.0 | 910 | 3995 | 0.0 |
| 395 | 2186 | 0.0 | 525 | 93289 | 47.3 | 655 | 64627 | 0.0 | 785 | 3267 | 0.0 | 915 | 4288 | 0.0 |
| 400 | 2015 | 0.0 | 530 | 98393 | 42.5 | 660 | 56614 | 0.0 | 790 | 2849 | 0.0 | 920 | 2446 | 0.0 |
| 405 | 2234 | 0.0 | 535 | 103269 | 37.2 | 665 | 49537 | 0.0 | 795 | 3037 | 0.0 | 925 | 3009 | 0.0 |
| 410 | 3412 | 0.1 | 540 | 107316 | 31.4 | 670 | 42866 | 0.0 | 800 | 2716 | 0.0 | 930 | 3026 | 0.0 |
| 415 | 6135 | 0.4 | 545 | 113101 | 26.3 | 675 | 36708 | 0.0 | 805 | 2648 | 0.0 | 935 | 4734 | 0.0 |
| 420 | 12146 | 1.4 | 550 | 120690 | 21.7 | 680 | 31814 | 0.0 | 810 | 3187 | 0.0 | 940 | 3719 | 0.0 |
| 425 | 23983 | 3.7 | 555 | 128583 | 17.3 | 685 | 27485 | 0.0 | 815 | 2931 | 0.0 | 945 | 1480 | 0.0 |
| 430 | 42142 | 8.9 | 560 | 137796 | 13.6 | 690 | 23698 | 0.0 | 820 | 2717 | 0.0 | 950 | 3450 | 0.0 |
| 435 | 68228 | 18.2 | 565 | 146577 | 10.3 | 695 | 20309 | 0.0 | 825 | 2236 | 0.0 | 955 | 5051 | 0.0 |
| 440 | 99323 | 33.2 | 570 | 154581 | 7.6 | 700 | 17890 | 0.0 | 830 | 2628 | 0.0 | 960 | 3176 | 0.0 |
| 445 | 115584 | 45.6 | 575 | 162633 | 5.4 | 705 | 15500 | 0.0 | 835 | 3140 | 0.0 | 965 | 5178 | 0.0 |
| 450 | 94997 | 43.8 | 580 | 168101 | 3.8 | 710 | 13699 | 0.0 | 840 | 3675 | 0.0 | 970 | 6385 | 0.0 |
| 455 | 61433 | 32.2 | 585 | 173145 | 2.6 | 715 | 12398 | 0.0 | 845 | 3283 | 0.0 | 975 | 3810 | 0.0 |
| 460 | 43373 | 25.6 | 590 | 174675 | 1.7 | 720 | 11147 | 0.0 | 850 | 3055 | 0.0 | 980 | 4322 | 0.0 |
| 465 | 32472 | 21.2 | 595 | 173724 | 1.1 | 725 | 9761 | 0.0 | 855 | 2932 | 0.0 | 985 | 4200 | 0.0 |
| 470 | 24257 | 17.4 | 600 | 171241 | 0.7 | 730 | 8651 | 0.0 | 860 | 3382 | 0.0 | 990 | 4661 | 0.0 |
| 475 | 21690 | 16.6 | 605 | 165134 | 0.5 | 735 | 7730 | 0.0 | 865 | 2605 | 0.0 | 995 | 6746 | 0.0 |
| 480 | 23173 | 18.6 | 610 | 156652 | 0.3 | 740 | 6847 | 0.0 | 870 | 3325 | 0.0 | 1000 | 4150 | 0.0 |
| 485 | 27564 | 22.7 | 615 | 147879 | 0.2 | 745 | 6124 | 0.0 | 875 | 3325 | 0.0 | | | |

Summary

$R_f = 76.9$
 $R_g = 94.4$
 $CIE R_a = 73.1$
 $R_g = -34.6$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 68 | CES51 = 90 | CES76 = 63 |
| CES02 = 62 | CES27 = 88 | CES52 = 89 | CES77 = 80 |
| CES03 = 31 | CES28 = 87 | CES53 = 80 | CES78 = 65 |
| CES04 = 70 | CES29 = 67 | CES54 = 84 | CES79 = 87 |
| CES05 = 48 | CES30 = 74 | CES55 = 84 | CES80 = 86 |
| CES06 = 51 | CES31 = 71 | CES56 = 75 | CES81 = 75 |
| CES07 = 40 | CES32 = 67 | CES57 = 74 | CES82 = 94 |
| CES08 = 39 | CES33 = 74 | CES58 = 76 | CES83 = 91 |
| CES09 = 29 | CES34 = 78 | CES59 = 87 | CES84 = 89 |
| CES10 = 75 | CES35 = 89 | CES60 = 93 | CES85 = 80 |
| CES11 = 58 | CES36 = 98 | CES61 = 86 | CES86 = 66 |
| CES12 = 64 | CES37 = 86 | CES62 = 89 | CES87 = 79 |
| CES13 = 43 | CES38 = 82 | CES63 = 77 | CES88 = 79 |
| CES14 = 74 | CES39 = 95 | CES64 = 74 | CES89 = 70 |
| CES15 = 71 | CES40 = 91 | CES65 = 68 | CES90 = 77 |
| CES16 = 47 | CES41 = 89 | CES66 = 71 | CES91 = 88 |
| CES17 = 50 | CES42 = 88 | CES67 = 69 | CES92 = 60 |
| CES18 = 56 | CES43 = 82 | CES68 = 74 | CES93 = 77 |
| CES19 = 72 | CES44 = 99 | CES69 = 82 | CES94 = 52 |
| CES20 = 65 | CES45 = 87 | CES70 = 67 | CES95 = 69 |
| CES21 = 86 | CES46 = 82 | CES71 = 66 | CES96 = 78 |
| CES22 = 79 | CES47 = 82 | CES72 = 88 | CES97 = 85 |
| CES23 = 92 | CES48 = 72 | CES73 = 59 | CES98 = 76 |
| CES24 = 91 | CES49 = 82 | CES74 = 97 | CES99 = 63 |
| CES25 = 72 | CES50 = 88 | CES75 = 66 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)