

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: P640860

Luminaire Tested: GWS-SA5E-760-U-T2R-W

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P640860
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-11)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA5E-760-U-T2R-W
Description: GALLEON WALL SLIM LUMINAIRE. (5) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II ROADWAY OPTICS
Light Source: (80) 5700K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 38619.9 lumens
Efficiency: N/A
Efficacy: 143.2 lumens/watt
Luminous Opening: Rectangular (W 1.5' x L: 1' x H: 0')
IES Classification: Type II - Short
BUG Rating: B3 - U0 - G4

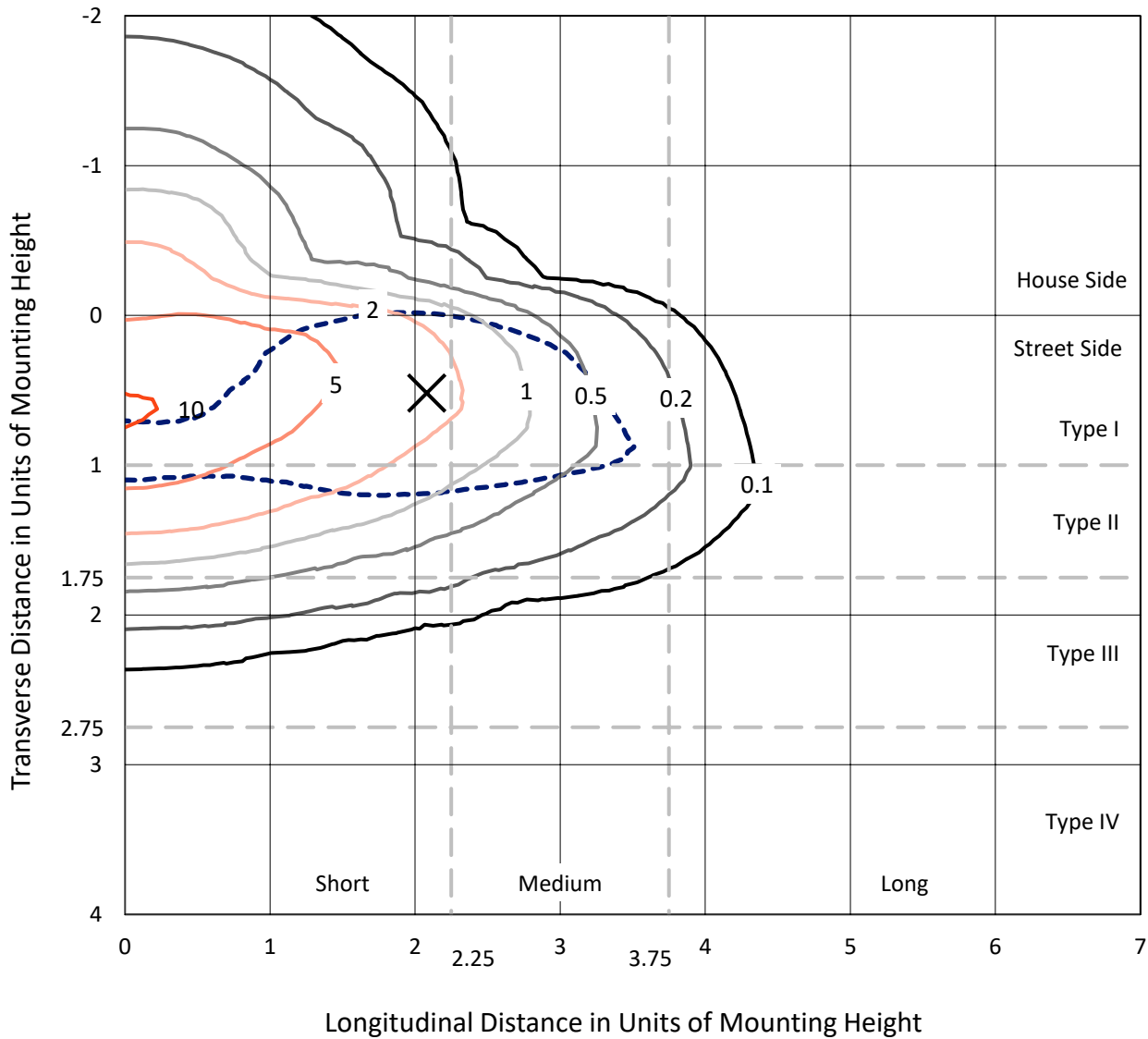
Input Watts (W): 269.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P640860
 CATALOG NUMBER: GWS-SA5E-760-U-T2R-W

Iso-Footcandle Lines of Horizontal Illumination

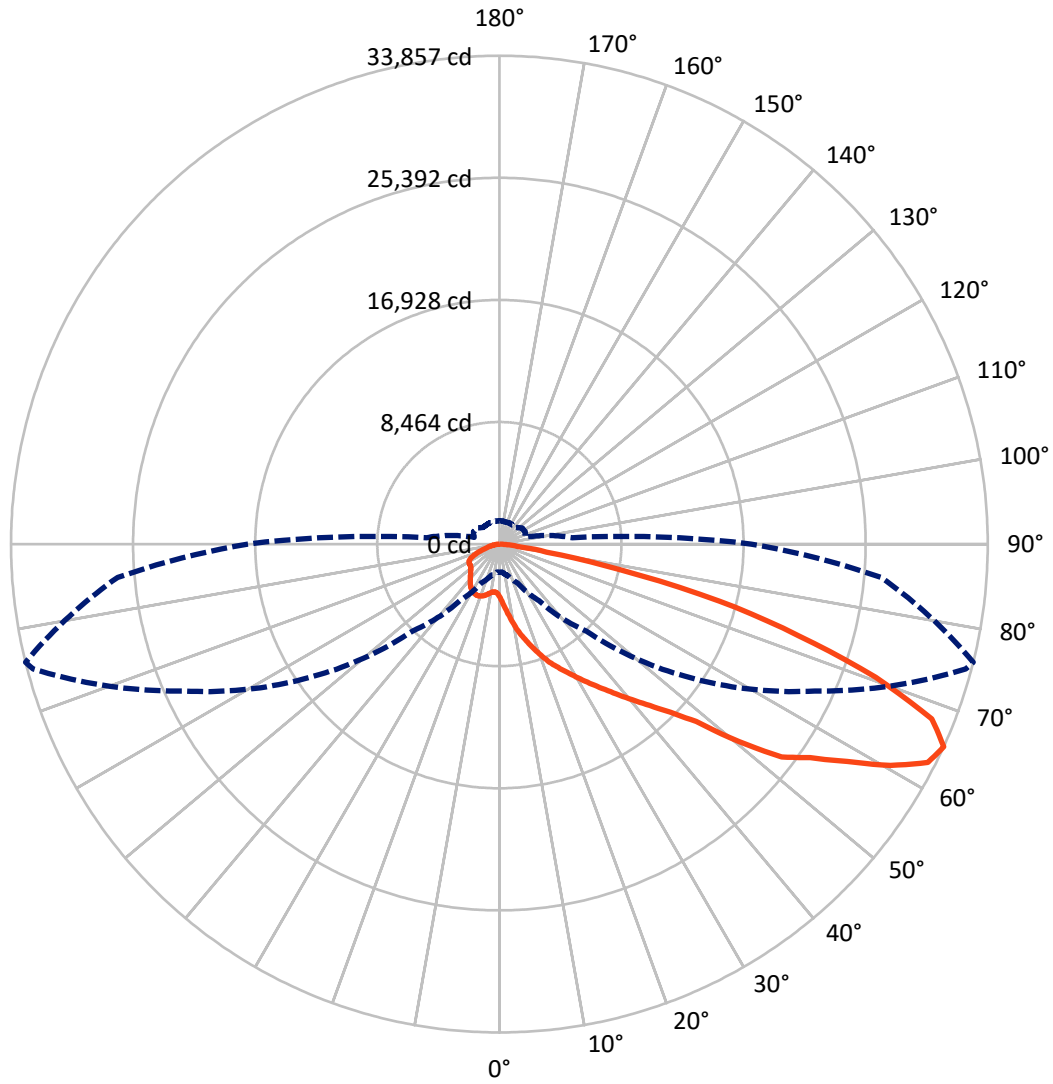
✕ Max cd
 - - - 1/2 Max cd



Based on 30 foot mounting height. Maximum calculated value = 10.6 fc
 Type II - Short - N/A

REPORT NUMBER: P640860
CATALOG NUMBER: GWS-SA5E-760-U-T2R-W

Luminous Intensity Polar Plot



— Vertical Plane Through 76-Deg Lateral - - - Horizontal Cone Through 65-Deg Vertical

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CATALOG NUMBER: GWS-SA5E-760-U-T2R-W

FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 6455.4 | 0.0 | 6455.4 |
| | % Fixture | 16.7 | 0.0 | 16.7 |
| Street Side | Lumens | 32164.5 | 0.0 | 32164.5 |
| | % Fixture | 83.3 | 0.0 | 83.3 |
| Total | Lumens | 38619.9 | 0.0 | 38619.9 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 434.5 | 1.1 |
| 10°-20° | 1654.9 | 4.3 |
| 20°-30° | 3225.2 | 8.4 |
| 30°-40° | 5394.0 | 14.0 |
| 40°-50° | 7723.1 | 20.0 |
| 50°-60° | 9143.1 | 23.7 |
| 60°-70° | 7602.6 | 19.7 |
| 70°-80° | 3111.2 | 8.1 |
| 80°-90° | 331.2 | 0.9 |
| 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° | 38619.9 | 100.0 |
| 0°-180° | 38619.9 | 100.0 |

Coefficient of Utilization



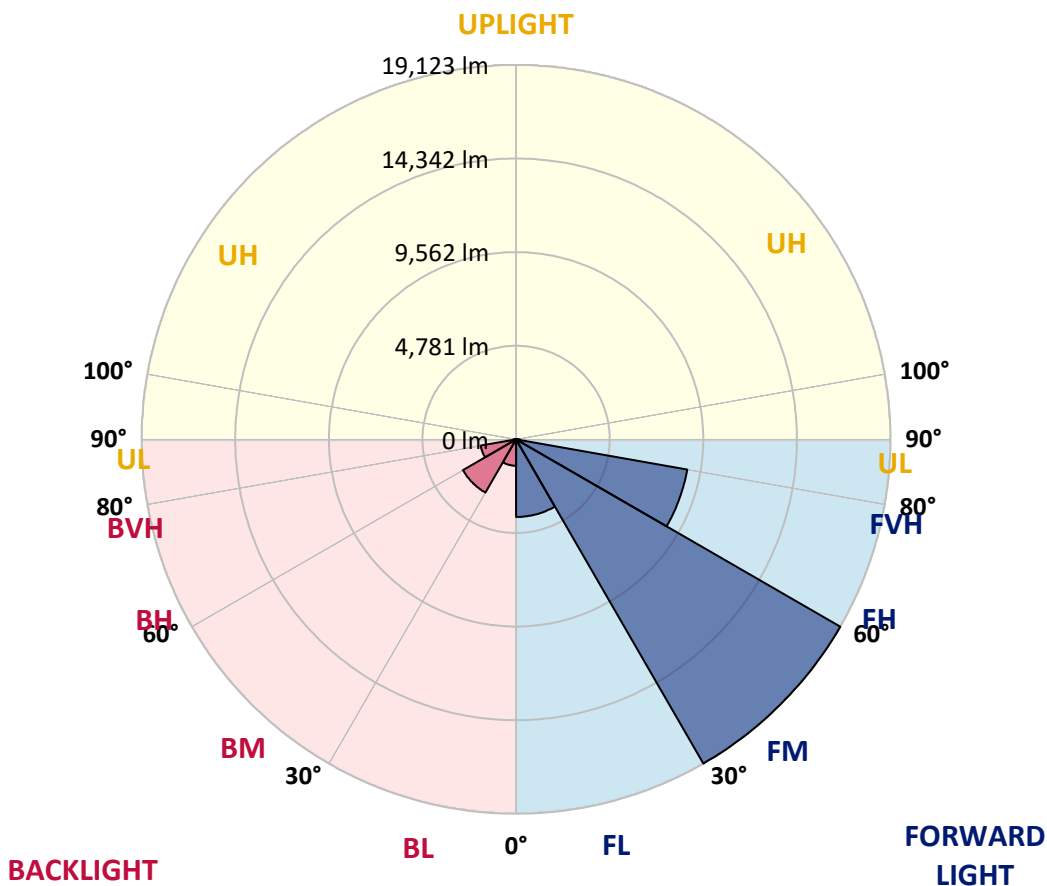
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|---------|-----------|-------------------------|------|----------|
| | | | B | U | G |
| FL (0°-30°) | 3964.2 | 10.3 | | | |
| FM (30°-60°) | 19123.1 | 49.5 | | | |
| FH (60°-80°) | 8879.7 | 23.0 | | | G4/12000 |
| FVH (80°-90°) | 197.5 | 0.5 | | | G2/225 |
| BL (0°-30°) | 1350.5 | 3.5 | B3/2500 | | |
| BM (30°-60°) | 3137.2 | 8.1 | B3/5000 | | |
| BH (60°-80°) | 1834.0 | 4.7 | B3/2500 | | G3/2500 |
| BVH (80°-90°) | 133.7 | 0.3 | | | 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 II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 76° | 85° |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0° | 3657.2 | 3657.2 | 3657.2 | 3657.2 | 3657.2 | 3657.2 | 3657.2 | 3657.2 | 3657.2 | 3657.2 | 3657.2 |
| 2.5° | 5126.0 | 5145.0 | 5082.6 | 5060.8 | 4914.2 | 4716.0 | 4550.4 | 4300.6 | 4069.8 | 4034.6 | 3828.2 |
| 5° | 6510.7 | 6429.2 | 6358.6 | 6312.5 | 6108.8 | 5883.5 | 5533.3 | 5063.6 | 4572.1 | 4512.4 | 4067.1 |
| 7.5° | 7333.3 | 7319.8 | 7232.9 | 7205.7 | 7048.2 | 6822.9 | 6461.8 | 5878.1 | 5164.0 | 5066.3 | 4390.2 |
| 10° | 7993.1 | 7984.9 | 7941.5 | 7965.9 | 7822.0 | 7602.1 | 7251.9 | 6649.1 | 5812.9 | 5715.2 | 4751.3 |
| 12.5° | 8568.7 | 8582.2 | 8574.1 | 8663.7 | 8590.4 | 8419.3 | 8055.5 | 7393.1 | 6461.8 | 6355.9 | 5191.2 |
| 15° | 8989.5 | 9000.4 | 9041.1 | 9236.6 | 9277.3 | 9242.0 | 8872.8 | 8123.4 | 7102.6 | 6950.5 | 5644.6 |
| 17.5° | 9109.0 | 9130.7 | 9228.4 | 9543.4 | 9763.3 | 9909.9 | 9635.7 | 8867.3 | 7732.4 | 7566.8 | 6106.1 |
| 20° | 9269.2 | 9293.6 | 9391.3 | 9719.9 | 10042.9 | 10376.9 | 10328.0 | 9622.1 | 8367.8 | 8232.0 | 6573.1 |
| 22.5° | 10010.4 | 9991.4 | 9947.9 | 10105.4 | 10336.2 | 10751.6 | 10873.7 | 10347.0 | 9024.8 | 8894.5 | 7089.0 |
| 25° | 11438.5 | 11403.2 | 11126.2 | 10982.3 | 10906.3 | 11158.8 | 11376.0 | 11006.8 | 9665.6 | 9470.1 | 7569.5 |
| 27.5° | 13013.2 | 12994.2 | 12641.2 | 12299.1 | 11832.2 | 11723.6 | 11851.2 | 11582.4 | 10287.3 | 10089.1 | 7987.7 |
| 30° | 14503.8 | 14446.7 | 14077.5 | 13648.5 | 13024.1 | 12557.1 | 12369.7 | 12147.1 | 10968.8 | 10762.4 | 8476.4 |
| 32.5° | 15836.8 | 15763.5 | 15329.1 | 14854.0 | 14199.7 | 13648.5 | 13089.2 | 12747.1 | 11739.8 | 11500.9 | 8975.9 |
| 35° | 16931.0 | 16857.7 | 16412.4 | 15907.4 | 15187.9 | 14780.7 | 14015.0 | 13398.7 | 12524.5 | 12282.9 | 9565.1 |
| 37.5° | 17778.1 | 17710.2 | 17245.9 | 16749.1 | 16121.9 | 15798.8 | 15133.6 | 14131.8 | 13428.6 | 13176.1 | 10189.6 |
| 40° | 18253.2 | 18204.4 | 17832.4 | 17438.7 | 16912.0 | 16632.3 | 16333.7 | 15057.6 | 14441.3 | 14188.8 | 10925.3 |
| 42.5° | 18397.1 | 18364.5 | 18103.9 | 17900.3 | 17544.6 | 17332.8 | 17503.9 | 16146.4 | 15521.9 | 15302.0 | 11753.4 |
| 45° | 18036.0 | 18036.0 | 17960.0 | 18063.2 | 18079.5 | 18076.8 | 18676.8 | 17376.3 | 16849.6 | 16607.9 | 12920.9 |
| 47.5° | 17112.9 | 17172.6 | 17284.0 | 17791.7 | 18326.5 | 18774.5 | 20047.9 | 19016.2 | 18557.3 | 18359.1 | 14574.3 |
| 50° | 15424.2 | 15587.1 | 15967.2 | 16958.2 | 18095.8 | 19236.1 | 21345.7 | 21440.7 | 21877.8 | 21527.6 | 17007.0 |
| 52.5° | 12950.8 | 12926.3 | 13895.6 | 15307.4 | 17042.3 | 19255.1 | 22059.7 | 23580.1 | 24755.8 | 24514.1 | 18815.2 |
| 55° | 10292.7 | 10252.0 | 11156.1 | 13102.8 | 15426.9 | 18527.4 | 22488.7 | 24560.3 | 26352.2 | 26135.0 | 20441.6 |
| 57.5° | 7881.8 | 7830.2 | 8633.8 | 10390.5 | 13146.2 | 16982.6 | 22407.2 | 25727.7 | 28548.7 | 28437.4 | 22651.6 |
| 60° | 5424.7 | 5362.2 | 6114.3 | 7651.0 | 10447.5 | 14620.5 | 21505.8 | 26327.8 | 31119.8 | 31157.8 | 25016.4 |
| 62.5° | 3258.1 | 3222.8 | 3768.5 | 4960.4 | 7515.2 | 11693.7 | 19396.3 | 25963.9 | 33167.0 | 33338.0 | 26536.8 |
| 65° | 1965.7 | 1941.3 | 2261.6 | 2959.4 | 4767.6 | 8533.4 | 16143.6 | 24104.1 | 33462.9 | 33856.6 | 26572.1 |
| 67.5° | 1430.8 | 1433.5 | 1525.9 | 1802.8 | 2780.2 | 5511.5 | 12114.5 | 20770.1 | 31920.8 | 32328.0 | 24896.9 |
| 70° | 1243.5 | 1248.9 | 1297.8 | 1360.2 | 1680.6 | 3154.9 | 7876.3 | 16396.1 | 27362.2 | 27677.1 | 20881.4 |
| 72.5° | 1105.0 | 1105.0 | 1137.6 | 1170.2 | 1314.1 | 1922.2 | 4219.2 | 11460.2 | 21595.4 | 21679.6 | 15937.3 |
| 75° | 972.0 | 963.8 | 980.1 | 996.4 | 1140.3 | 1343.9 | 2052.6 | 7984.9 | 15950.9 | 15755.4 | 10300.9 |
| 77.5° | 773.8 | 765.6 | 768.4 | 784.6 | 915.0 | 961.1 | 1039.9 | 4987.5 | 8989.5 | 8484.5 | 4550.4 |
| 80° | 551.2 | 545.7 | 575.6 | 616.3 | 676.0 | 589.2 | 651.6 | 2413.7 | 3564.9 | 3317.8 | 1764.8 |
| 82.5° | 328.5 | 339.4 | 385.5 | 418.1 | 467.0 | 369.2 | 420.8 | 806.4 | 1262.5 | 1229.9 | 716.8 |
| 85° | 46.2 | 48.9 | 138.5 | 160.2 | 200.9 | 143.9 | 222.6 | 363.8 | 505.0 | 540.3 | 252.5 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 19.0 | 65.2 | 143.9 | 146.6 | 62.4 |
| 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: P640860
 CATALOG NUMBER: GWS-SA5E-760-U-T2R-W

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 3657.2 | 3657.2 | 3657.2 | 3657.2 | 3657.2 | 3657.2 | 3657.2 | 3657.2 | 3657.2 | 3657.2 | 3657.2 |
| 2.5° | 3722.3 | 3594.7 | 3412.8 | 3260.8 | 3133.2 | 3030.0 | 2943.1 | 2877.9 | 2858.9 | 2831.8 | 2831.8 |
| 5° | 3858.1 | 3627.3 | 3301.5 | 3070.7 | 2937.7 | 2858.9 | 2804.6 | 2777.5 | 2763.9 | 2747.6 | 2739.5 |
| 7.5° | 4045.4 | 3722.3 | 3282.5 | 3049.0 | 2945.8 | 2896.9 | 2861.7 | 2845.4 | 2834.5 | 2818.2 | 2818.2 |
| 10° | 4303.3 | 3863.5 | 3342.2 | 3125.0 | 3043.6 | 2994.7 | 2954.0 | 2926.8 | 2902.4 | 2877.9 | 2872.5 |
| 12.5° | 4583.0 | 4048.1 | 3450.8 | 3228.2 | 3141.3 | 3081.6 | 3024.6 | 2983.8 | 2954.0 | 2924.1 | 2916.0 |
| 15° | 4892.5 | 4238.2 | 3567.6 | 3328.6 | 3220.0 | 3138.6 | 3070.7 | 3008.3 | 2967.5 | 2924.1 | 2918.7 |
| 17.5° | 5196.6 | 4430.9 | 3665.3 | 3396.5 | 3258.1 | 3157.6 | 3059.9 | 2978.4 | 2926.8 | 2877.9 | 2864.4 |
| 20° | 5560.4 | 4623.7 | 3733.2 | 3415.5 | 3249.9 | 3116.9 | 3000.1 | 2896.9 | 2839.9 | 2782.9 | 2774.8 |
| 22.5° | 5894.4 | 4802.9 | 3765.8 | 3388.4 | 3187.5 | 3030.0 | 2894.2 | 2782.9 | 2720.5 | 2663.5 | 2652.6 |
| 25° | 6217.4 | 4960.4 | 3752.2 | 3323.2 | 3092.4 | 2910.5 | 2769.3 | 2658.0 | 2598.3 | 2538.6 | 2522.3 |
| 27.5° | 6529.7 | 5066.3 | 3697.9 | 3222.8 | 2973.0 | 2777.5 | 2641.7 | 2541.3 | 2489.7 | 2438.1 | 2416.4 |
| 30° | 6836.5 | 5164.0 | 3613.7 | 3092.4 | 2820.9 | 2639.0 | 2527.7 | 2457.1 | 2405.5 | 2351.2 | 2334.9 |
| 32.5° | 7146.0 | 5234.6 | 3486.1 | 2940.4 | 2666.2 | 2516.8 | 2449.0 | 2397.4 | 2343.1 | 2288.8 | 2272.5 |
| 35° | 7458.2 | 5264.5 | 3331.4 | 2766.6 | 2535.8 | 2438.1 | 2413.7 | 2353.9 | 2280.6 | 2215.5 | 2193.8 |
| 37.5° | 7830.2 | 5291.6 | 3138.6 | 2595.6 | 2421.8 | 2400.1 | 2394.7 | 2305.1 | 2218.2 | 2128.6 | 2104.2 |
| 40° | 8278.2 | 5326.9 | 2940.4 | 2440.8 | 2329.5 | 2386.5 | 2364.8 | 2242.6 | 2068.9 | 1982.0 | 1954.8 |
| 42.5° | 8826.6 | 5392.1 | 2734.0 | 2299.6 | 2261.6 | 2334.9 | 2310.5 | 2090.6 | 1973.8 | 1925.0 | 1911.4 |
| 45° | 9633.0 | 5631.0 | 2527.7 | 2188.3 | 2210.0 | 2261.6 | 2223.6 | 2001.0 | 1954.8 | 1922.2 | 1906.0 |
| 47.5° | 11069.2 | 5997.5 | 2348.5 | 2104.2 | 2169.3 | 2196.5 | 2049.9 | 1976.6 | 1941.3 | 1897.8 | 1878.8 |
| 50° | 12562.5 | 6157.7 | 2204.6 | 2052.6 | 2123.2 | 2136.7 | 1954.8 | 1944.0 | 1919.5 | 1873.4 | 1854.4 |
| 52.5° | 13572.5 | 6136.0 | 2117.7 | 2033.6 | 2085.2 | 2033.6 | 1911.4 | 1908.7 | 1892.4 | 1838.1 | 1816.4 |
| 55° | 14712.8 | 6174.0 | 2079.7 | 2039.0 | 2068.9 | 1859.8 | 1857.1 | 1865.2 | 1857.1 | 1797.4 | 1786.5 |
| 57.5° | 16252.2 | 6290.8 | 2060.7 | 2058.0 | 2058.0 | 1775.6 | 1805.5 | 1816.4 | 1800.1 | 1772.9 | 1764.8 |
| 60° | 17731.9 | 6298.9 | 2025.4 | 2079.7 | 2049.9 | 1724.1 | 1745.8 | 1756.6 | 1737.6 | 1732.2 | 1729.5 |
| 62.5° | 18288.5 | 5907.9 | 1946.7 | 2063.4 | 2017.3 | 1667.0 | 1683.3 | 1688.8 | 1669.8 | 1683.3 | 1680.6 |
| 65° | 17460.4 | 5077.1 | 1816.4 | 1984.7 | 1916.8 | 1615.5 | 1604.6 | 1618.2 | 1585.6 | 1620.9 | 1623.6 |
| 67.5° | 15502.9 | 4034.6 | 1618.2 | 1835.4 | 1775.6 | 1558.4 | 1536.7 | 1536.7 | 1482.4 | 1536.7 | 1534.0 |
| 70° | 12500.1 | 2850.8 | 1327.7 | 1596.4 | 1620.9 | 1490.6 | 1479.7 | 1417.3 | 1330.4 | 1411.8 | 1403.7 |
| 72.5° | 9475.5 | 2047.1 | 1045.3 | 1262.5 | 1395.5 | 1395.5 | 1398.2 | 1292.4 | 1191.9 | 1229.9 | 1197.3 |
| 75° | 6003.0 | 1441.7 | 836.2 | 966.6 | 1094.2 | 1224.5 | 1286.9 | 1091.4 | 1001.9 | 985.6 | 969.3 |
| 77.5° | 2704.2 | 947.5 | 651.6 | 741.2 | 776.5 | 966.6 | 1175.6 | 939.4 | 817.2 | 781.9 | 771.1 |
| 80° | 1132.2 | 589.2 | 464.3 | 524.0 | 477.8 | 811.8 | 1037.1 | 730.3 | 600.0 | 551.2 | 515.9 |
| 82.5° | 496.9 | 350.2 | 295.9 | 282.4 | 298.7 | 602.7 | 773.8 | 486.0 | 374.7 | 507.7 | 513.1 |
| 85° | 209.1 | 184.6 | 152.0 | 138.5 | 122.2 | 230.8 | 363.8 | 190.1 | 233.5 | 133.0 | 108.6 |
| 87.5° | 48.9 | 54.3 | 40.7 | 27.2 | 16.3 | 2.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
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Peachtree City, GA 30269



LM-79-2008: Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGRAW-EDISON

Report Number: SP1-1908-441-9-R4

Test Date: 10/23/2019

Luminaire Tested: SA1C-760-U-5WQ

Data in this report applies to families of products SA1C-760-U-5WQ .

Test Information

Test Method: LM-79-2008
 Report Number: SP1-1908-441-9-R4
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 10/28/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: MCGRAW-EDISON
 Catalog Number: **SA1C-760-U-5WQ**
 Description: MCGRAW EDISON ROADWAY AND AREA LUMINAIRE

THIS IS A REVISION OF SP1-1908-441-4-R3. TO UPDATE THE CATALOG INFORMATION.TESTED IN SITU. ROADWAY AND AREA LUMINAIRE. (1) 70 CRI, 5000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

Spectral Parameters

CCT (K): 5474
 CIE u': 0.2052
 CIE v': 0.4804
 Duv: 0.0025
 CIE x: 0.3330
 CIE y: 0.3466
 CIE z: 0.3204
 Peak Wavelength (nm): 442
 Dominant Wavelength (nm): 554
 Purity: 4.1

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 71.7 | | |
| R1: | 70.6 | R9: | -27.1 |
| R2: | 74.6 | R10: | 40.8 |
| R3: | 78.3 | R11: | 74.6 |
| R4: | 73.8 | R12: | 50.4 |
| R5: | 72.4 | R13: | 70.0 |
| R6: | 67.5 | R14: | 87.8 |
| R7: | 77.5 | | |
| R8: | 58.9 | | |

Rf: 72.1
 Rg: 97.2



Test Conditions

Stabilization Time: 240M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 24.6/31%
 Sphere Temperature (°C): 25.9

REPORT NUMBER: SP1-1908-441-9-R4

| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/28/2019 | 12/28/2019 |
| Power Meter | IN0071 | 12/5/2018 | 12/5/2019 |
| AC Power Source | IN0063 | 12/5/2018 | 12/5/2019 |
| DC Power Source | IN0208 | 12/5/2018 | 12/5/2019 |
| Sphere Thermometer | IN0085 | 12/5/2018 | 12/5/2019 |
| Room Thermometer | IN0046 | 12/5/2018 | 12/5/2019 |

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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 5700K 4-step quadrangle

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Photopic Flux vs. Wavelength



#####

| 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 | 3540 | NR | 490 | 33363 | NR | 620 | 80193 | NR | 750 | 4663 | NR | 880 | 4678 | NR |
| 365 | 2862 | NR | 495 | 44177 | NR | 625 | 73091 | NR | 755 | 4147 | NR | 885 | 4128 | NR |
| 370 | 2865 | NR | 500 | 57019 | NR | 630 | 66269 | NR | 760 | 4040 | NR | 890 | 4504 | NR |
| 375 | 3254 | NR | 505 | 70030 | NR | 635 | 60012 | NR | 765 | 3474 | NR | 895 | 4371 | NR |
| 380 | 3076 | NR | 510 | 81972 | NR | 640 | 53914 | NR | 770 | 3469 | NR | 900 | 4082 | NR |
| 385 | 2904 | NR | 515 | 92590 | NR | 645 | 48385 | NR | 775 | 3181 | NR | 905 | 2982 | NR |
| 390 | 2689 | NR | 520 | 100305 | NR | 650 | 43219 | NR | 780 | 2969 | NR | 910 | 4351 | NR |
| 395 | 2619 | NR | 525 | 107452 | NR | 655 | 38562 | NR | 785 | 3132 | NR | 915 | 3365 | NR |
| 400 | 2679 | NR | 530 | 111373 | NR | 660 | 34110 | NR | 790 | 2507 | NR | 920 | 3430 | NR |
| 405 | 3515 | NR | 535 | 114505 | NR | 665 | 30085 | NR | 795 | 2968 | NR | 925 | 4264 | NR |
| 410 | 6934 | NR | 540 | 116408 | NR | 670 | 26205 | NR | 800 | 2758 | NR | 930 | 4095 | NR |
| 415 | 14943 | NR | 545 | 118700 | NR | 675 | 22906 | NR | 805 | 2872 | NR | 935 | 5048 | NR |
| 420 | 31939 | NR | 550 | 119209 | NR | 680 | 20058 | NR | 810 | 3094 | NR | 940 | 4074 | NR |
| 425 | 64701 | NR | 555 | 120742 | NR | 685 | 17413 | NR | 815 | 3222 | NR | 945 | 4949 | NR |
| 430 | 110939 | NR | 560 | 121594 | NR | 690 | 15447 | NR | 820 | 3238 | NR | 950 | 4387 | NR |
| 435 | 164597 | NR | 565 | 121913 | NR | 695 | 13398 | NR | 825 | 3524 | NR | 955 | 4978 | NR |
| 440 | 207696 | NR | 570 | 122147 | NR | 700 | 11777 | NR | 830 | 2921 | NR | 960 | 4706 | NR |
| 445 | 201830 | NR | 575 | 121605 | NR | 705 | 10412 | NR | 835 | 3595 | NR | 965 | 5083 | NR |
| 450 | 145410 | NR | 580 | 120248 | NR | 710 | 9544 | NR | 840 | 3016 | NR | 970 | 4522 | NR |
| 455 | 89594 | NR | 585 | 117717 | NR | 715 | 8940 | NR | 845 | 4032 | NR | 975 | 4740 | NR |
| 460 | 58321 | NR | 590 | 114359 | NR | 720 | 7897 | NR | 850 | 3579 | NR | 980 | 6122 | NR |
| 465 | 39318 | NR | 595 | 109974 | NR | 725 | 7045 | NR | 855 | 4571 | NR | 985 | 6450 | NR |
| 470 | 27693 | NR | 600 | 105269 | NR | 730 | 6483 | NR | 860 | 4485 | NR | 990 | 4875 | NR |
| 475 | 23081 | NR | 605 | 99453 | NR | 735 | 5838 | NR | 865 | 3978 | NR | 995 | 4764 | NR |
| 480 | 23002 | NR | 610 | 92921 | NR | 740 | 5261 | NR | 870 | 4298 | NR | 1000 | 3640 | NR |
| 485 | 26201 | NR | 615 | 86989 | NR | 745 | 4760 | NR | 875 | 4356 | NR | | | |

REPORT NUMBER: SP1-1908-441-9-R4

Scotopic Flux vs. Wavelength



Scotopic Lumens: 13759.3 S/P: 1.85

| 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 | 3540 | NR | 490 | 33363 | NR | 620 | 80193 | NR | 750 | 4663 | NR | 880 | 4678 | NR |
| 365 | 2862 | NR | 495 | 44177 | NR | 625 | 73091 | NR | 755 | 4147 | NR | 885 | 4128 | NR |
| 370 | 2865 | NR | 500 | 57019 | NR | 630 | 66269 | NR | 760 | 4040 | NR | 890 | 4504 | NR |
| 375 | 3254 | NR | 505 | 70030 | NR | 635 | 60012 | NR | 765 | 3474 | NR | 895 | 4371 | NR |
| 380 | 3076 | NR | 510 | 81972 | NR | 640 | 53914 | NR | 770 | 3469 | NR | 900 | 4082 | NR |
| 385 | 2904 | NR | 515 | 92590 | NR | 645 | 48385 | NR | 775 | 3181 | NR | 905 | 2982 | NR |
| 390 | 2689 | NR | 520 | 100305 | NR | 650 | 43219 | NR | 780 | 2969 | NR | 910 | 4351 | NR |
| 395 | 2619 | NR | 525 | 107452 | NR | 655 | 38562 | NR | 785 | 3132 | NR | 915 | 3365 | NR |
| 400 | 2679 | NR | 530 | 111373 | NR | 660 | 34110 | NR | 790 | 2507 | NR | 920 | 3430 | NR |
| 405 | 3515 | NR | 535 | 114505 | NR | 665 | 30085 | NR | 795 | 2968 | NR | 925 | 4264 | NR |
| 410 | 6934 | NR | 540 | 116408 | NR | 670 | 26205 | NR | 800 | 2758 | NR | 930 | 4095 | NR |
| 415 | 14943 | NR | 545 | 118700 | NR | 675 | 22906 | NR | 805 | 2872 | NR | 935 | 5048 | NR |
| 420 | 31939 | NR | 550 | 119209 | NR | 680 | 20058 | NR | 810 | 3094 | NR | 940 | 4074 | NR |
| 425 | 64701 | NR | 555 | 120742 | NR | 685 | 17413 | NR | 815 | 3222 | NR | 945 | 4949 | NR |
| 430 | 110939 | NR | 560 | 121594 | NR | 690 | 15447 | NR | 820 | 3238 | NR | 950 | 4387 | NR |
| 435 | 164597 | NR | 565 | 121913 | NR | 695 | 13398 | NR | 825 | 3524 | NR | 955 | 4978 | NR |
| 440 | 207696 | NR | 570 | 122147 | NR | 700 | 11777 | NR | 830 | 2921 | NR | 960 | 4706 | NR |
| 445 | 201830 | NR | 575 | 121605 | NR | 705 | 10412 | NR | 835 | 3595 | NR | 965 | 5083 | NR |
| 450 | 145410 | NR | 580 | 120248 | NR | 710 | 9544 | NR | 840 | 3016 | NR | 970 | 4522 | NR |
| 455 | 89594 | NR | 585 | 117717 | NR | 715 | 8940 | NR | 845 | 4032 | NR | 975 | 4740 | NR |
| 460 | 58321 | NR | 590 | 114359 | NR | 720 | 7897 | NR | 850 | 3579 | NR | 980 | 6122 | NR |
| 465 | 39318 | NR | 595 | 109974 | NR | 725 | 7045 | NR | 855 | 4571 | NR | 985 | 6450 | NR |
| 470 | 27693 | NR | 600 | 105269 | NR | 730 | 6483 | NR | 860 | 4485 | NR | 990 | 4875 | NR |
| 475 | 23081 | NR | 605 | 99453 | NR | 735 | 5838 | NR | 865 | 3978 | NR | 995 | 4764 | NR |
| 480 | 23002 | NR | 610 | 92921 | NR | 740 | 5261 | NR | 870 | 4298 | NR | 1000 | 3640 | NR |
| 485 | 26201 | NR | 615 | 86989 | NR | 745 | 4760 | NR | 875 | 4356 | NR | | | |

REPORT NUMBER: SP1-1908-441-9-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 5527.6 M/P: 0.74

| 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 | 3540 | NR | 490 | 33363 | NR | 620 | 80193 | NR | 750 | 4663 | NR | 880 | 4678 | NR |
| 365 | 2862 | NR | 495 | 44177 | NR | 625 | 73091 | NR | 755 | 4147 | NR | 885 | 4128 | NR |
| 370 | 2865 | NR | 500 | 57019 | NR | 630 | 66269 | NR | 760 | 4040 | NR | 890 | 4504 | NR |
| 375 | 3254 | NR | 505 | 70030 | NR | 635 | 60012 | NR | 765 | 3474 | NR | 895 | 4371 | NR |
| 380 | 3076 | NR | 510 | 81972 | NR | 640 | 53914 | NR | 770 | 3469 | NR | 900 | 4082 | NR |
| 385 | 2904 | NR | 515 | 92590 | NR | 645 | 48385 | NR | 775 | 3181 | NR | 905 | 2982 | NR |
| 390 | 2689 | NR | 520 | 100305 | NR | 650 | 43219 | NR | 780 | 2969 | NR | 910 | 4351 | NR |
| 395 | 2619 | NR | 525 | 107452 | NR | 655 | 38562 | NR | 785 | 3132 | NR | 915 | 3365 | NR |
| 400 | 2679 | NR | 530 | 111373 | NR | 660 | 34110 | NR | 790 | 2507 | NR | 920 | 3430 | NR |
| 405 | 3515 | NR | 535 | 114505 | NR | 665 | 30085 | NR | 795 | 2968 | NR | 925 | 4264 | NR |
| 410 | 6934 | NR | 540 | 116408 | NR | 670 | 26205 | NR | 800 | 2758 | NR | 930 | 4095 | NR |
| 415 | 14943 | NR | 545 | 118700 | NR | 675 | 22906 | NR | 805 | 2872 | NR | 935 | 5048 | NR |
| 420 | 31939 | NR | 550 | 119209 | NR | 680 | 20058 | NR | 810 | 3094 | NR | 940 | 4074 | NR |
| 425 | 64701 | NR | 555 | 120742 | NR | 685 | 17413 | NR | 815 | 3222 | NR | 945 | 4949 | NR |
| 430 | 110939 | NR | 560 | 121594 | NR | 690 | 15447 | NR | 820 | 3238 | NR | 950 | 4387 | NR |
| 435 | 164597 | NR | 565 | 121913 | NR | 695 | 13398 | NR | 825 | 3524 | NR | 955 | 4978 | NR |
| 440 | 207696 | NR | 570 | 122147 | NR | 700 | 11777 | NR | 830 | 2921 | NR | 960 | 4706 | NR |
| 445 | 201830 | NR | 575 | 121605 | NR | 705 | 10412 | NR | 835 | 3595 | NR | 965 | 5083 | NR |
| 450 | 145410 | NR | 580 | 120248 | NR | 710 | 9544 | NR | 840 | 3016 | NR | 970 | 4522 | NR |
| 455 | 89594 | NR | 585 | 117717 | NR | 715 | 8940 | NR | 845 | 4032 | NR | 975 | 4740 | NR |
| 460 | 58321 | NR | 590 | 114359 | NR | 720 | 7897 | NR | 850 | 3579 | NR | 980 | 6122 | NR |
| 465 | 39318 | NR | 595 | 109974 | NR | 725 | 7045 | NR | 855 | 4571 | NR | 985 | 6450 | NR |
| 470 | 27693 | NR | 600 | 105269 | NR | 730 | 6483 | NR | 860 | 4485 | NR | 990 | 4875 | NR |
| 475 | 23081 | NR | 605 | 99453 | NR | 735 | 5838 | NR | 865 | 3978 | NR | 995 | 4764 | NR |
| 480 | 23002 | NR | 610 | 92921 | NR | 740 | 5261 | NR | 870 | 4298 | NR | 1000 | 3640 | NR |
| 485 | 26201 | NR | 615 | 86989 | NR | 745 | 4760 | NR | 875 | 4356 | NR | | | |

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Summary

$R_f = 72.1$
 $R_g = 97.2$
CIE $R_a = 71.7$
 $R_9 = -27.1$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 54 | CES51 = 88 | CES76 = 43 |
| CES02 = 59 | CES27 = 79 | CES52 = 90 | CES77 = 64 |
| CES03 = 30 | CES28 = 77 | CES53 = 77 | CES78 = 46 |
| CES04 = 69 | CES29 = 50 | CES54 = 81 | CES79 = 74 |
| CES05 = 46 | CES30 = 59 | CES55 = 80 | CES80 = 70 |
| CES06 = 50 | CES31 = 55 | CES56 = 70 | CES81 = 71 |
| CES07 = 38 | CES32 = 52 | CES57 = 68 | CES82 = 88 |
| CES08 = 38 | CES33 = 63 | CES58 = 70 | CES83 = 82 |
| CES09 = 29 | CES34 = 63 | CES59 = 88 | CES84 = 87 |
| CES10 = 72 | CES35 = 79 | CES60 = 92 | CES85 = 84 |
| CES11 = 55 | CES36 = 90 | CES61 = 88 | CES86 = 76 |
| CES12 = 61 | CES37 = 72 | CES62 = 81 | CES87 = 75 |
| CES13 = 41 | CES38 = 68 | CES63 = 75 | CES88 = 77 |
| CES14 = 74 | CES39 = 91 | CES64 = 72 | CES89 = 76 |
| CES15 = 70 | CES40 = 83 | CES65 = 65 | CES90 = 76 |
| CES16 = 46 | CES41 = 84 | CES66 = 66 | CES91 = 92 |
| CES17 = 48 | CES42 = 70 | CES67 = 64 | CES92 = 70 |
| CES18 = 55 | CES43 = 69 | CES68 = 71 | CES93 = 83 |
| CES19 = 70 | CES44 = 98 | CES69 = 80 | CES94 = 60 |
| CES20 = 64 | CES45 = 79 | CES70 = 58 | CES95 = 73 |
| CES21 = 85 | CES46 = 78 | CES71 = 55 | CES96 = 79 |
| CES22 = 77 | CES47 = 76 | CES72 = 84 | CES97 = 84 |
| CES23 = 91 | CES48 = 68 | CES73 = 47 | CES98 = 73 |
| CES24 = 90 | CES49 = 78 | CES74 = 94 | CES99 = 62 |
| CES25 = 71 | CES50 = 87 | CES75 = 51 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)