

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: P634348

Luminaire Tested: GWS-SA3B-750-U-SL3-W-GRSBK

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P634348
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-32)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA3B-750-U-SL3-W-GRSBK
Description: GALLEON WALL SLIM LUMINAIRE. (3) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III SPILL LIGHT ELIMINATOR OPTICS W/ FACTORY INSTALLED GLARE SHIELD, BK
Light Source: (48) 5000K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6223.2 lumens
Efficiency: N/A
Efficacy: 91.1 lumens/watt
Luminous Opening: Rectangular (W 1.5' x L: 0.5' x H: 0')
IES Classification: Type II - Short
BUG Rating: B1 - U0 - G1

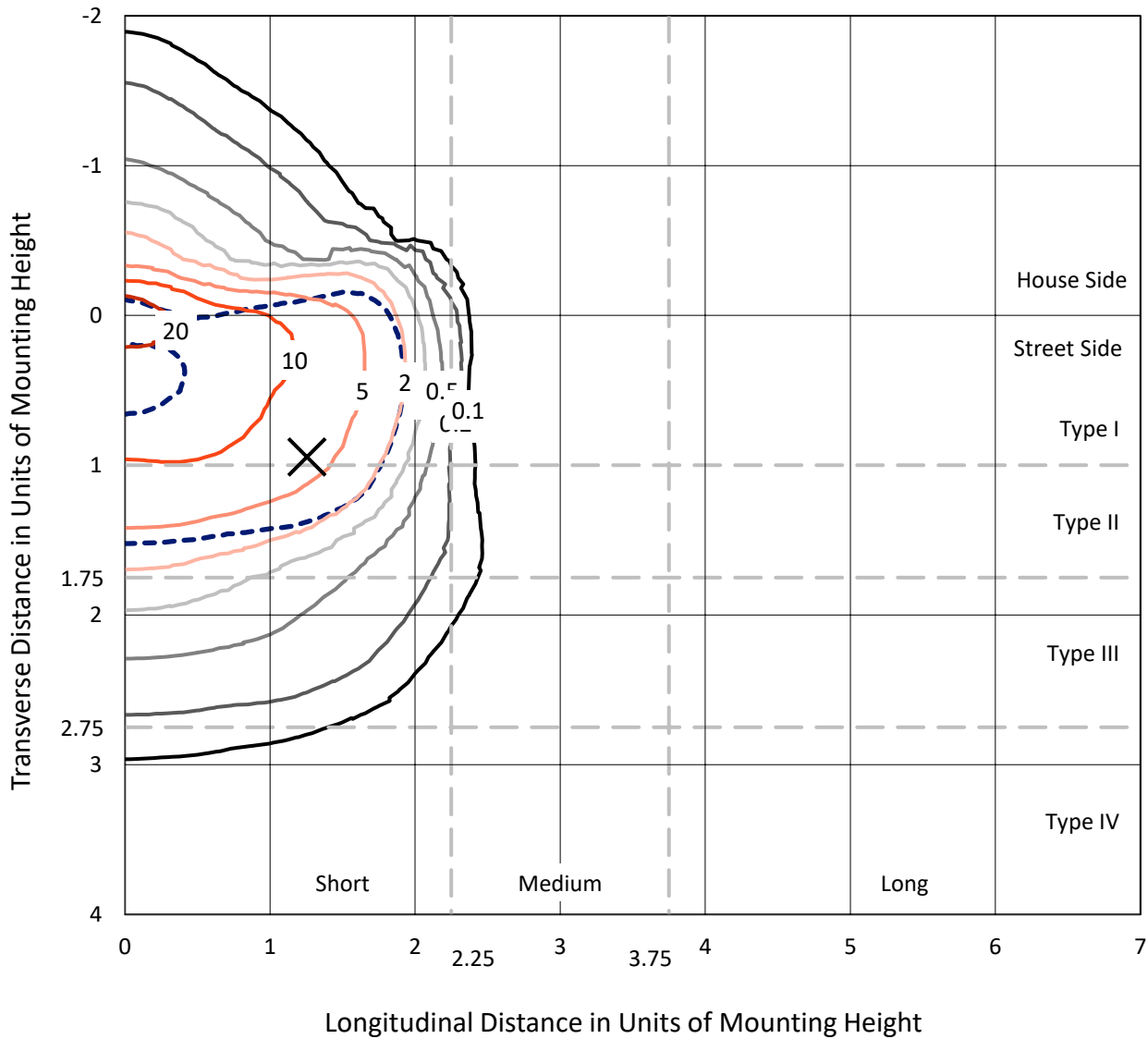
Input Watts (W): 68.3
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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 CATALOG NUMBER: GWS-SA3B-750-U-SL3-W-GRSBK

Iso-Footcandle Lines of Horizontal Illumination

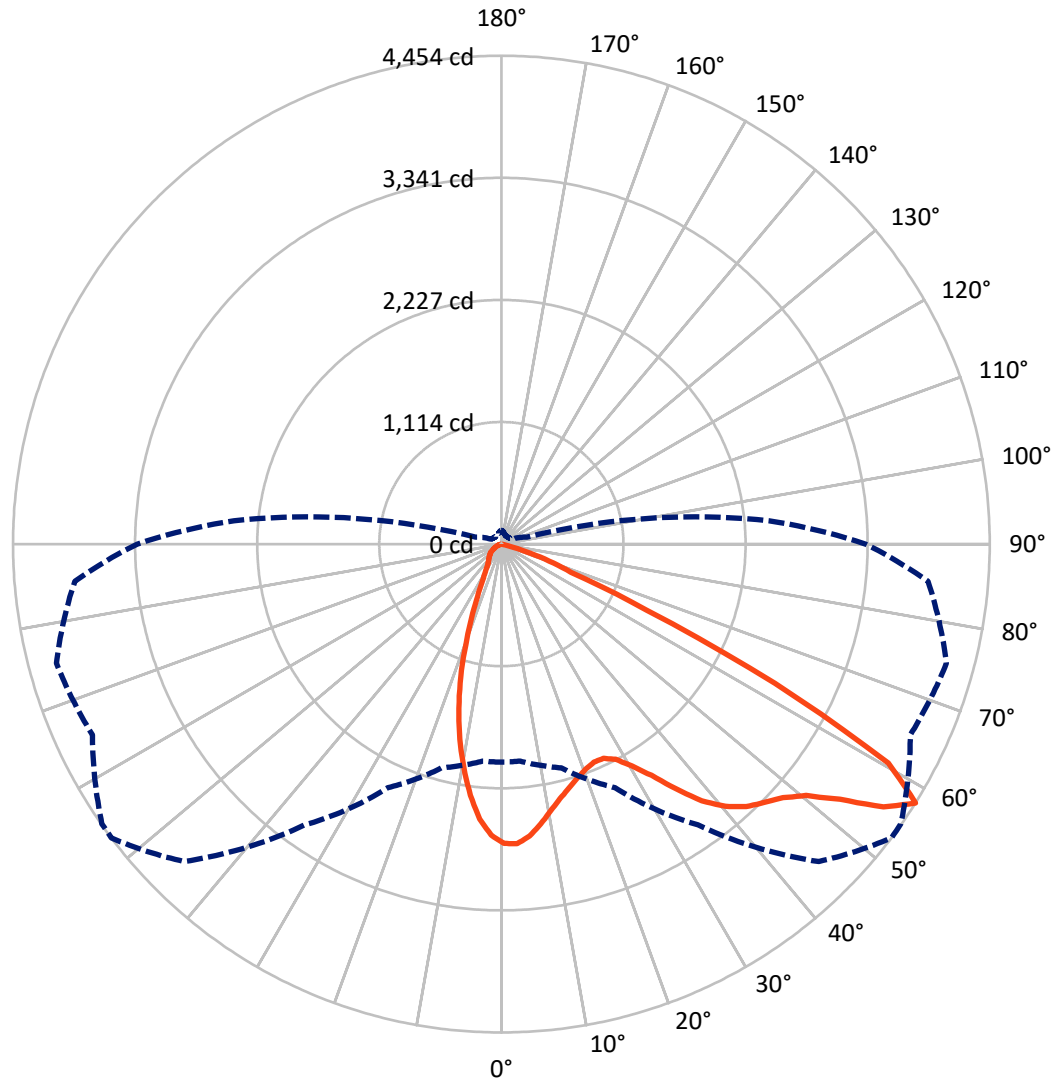
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 27.3 fc
 Type II - Short - N/A

REPORT NUMBER: P634348
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Luminous Intensity Polar Plot



— Vertical Plane Through 53-Deg Lateral - - - Horizontal Cone Through 57.5-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 1028.0 | 0.0 | 1028.0 |
| | % Fixture | 16.5 | 0.0 | 16.5 |
| Street Side | Lumens | 5195.2 | 0.0 | 5195.2 |
| | % Fixture | 83.5 | 0.0 | 83.5 |
| Total | Lumens | 6223.2 | 0.0 | 6223.2 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 233.6 | 3.8 |
| 10°-20° | 512.8 | 8.2 |
| 20°-30° | 668.0 | 10.7 |
| 30°-40° | 968.9 | 15.6 |
| 40°-50° | 1398.1 | 22.5 |
| 50°-60° | 1690.9 | 27.2 |
| 60°-70° | 689.1 | 11.1 |
| 70°-80° | 61.9 | 1.0 |
| 80°-90° | 0.0 | 0.0 |
| 90°-100° | 0.0 | 0.0 |
| 100°-110° | 0.0 | 0.0 |
| 110°-120° | 0.0 | 0.0 |
| 120°-130° | 0.0 | 0.0 |
| 130°-140° | 0.0 | 0.0 |
| 140°-150° | 0.0 | 0.0 |
| 150°-160° | 0.0 | 0.0 |
| 160°-170° | 0.0 | 0.0 |
| 170°-180° | 0.0 | 0.0 |
| 0°-90° | 6223.2 | 100.0 |
| 0°-180° | 6223.2 | 100.0 |

Coefficient of Utilization



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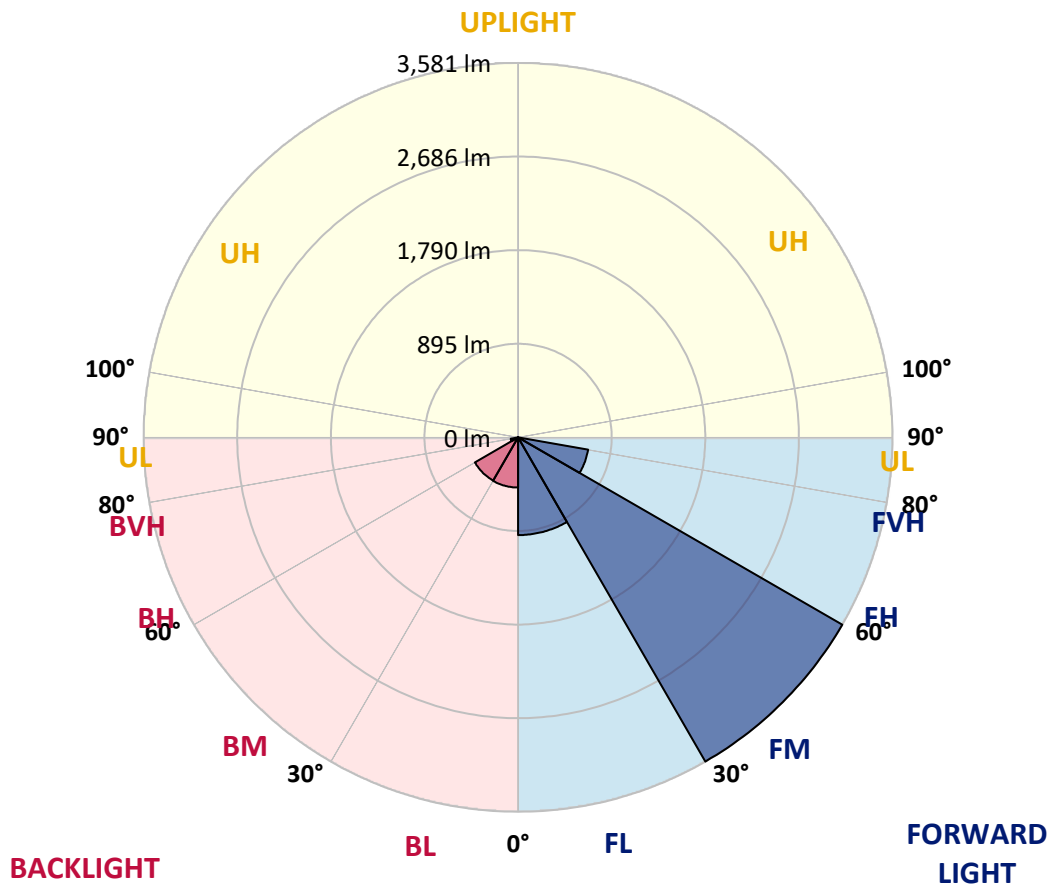
CATALOG NUMBER: GWS-SA3B-750-U-SL3-W-GRSBK

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 934.5 | 15.0 | | | |
| FM (30°-60°) | 3580.7 | 57.5 | | | |
| FH (60°-80°) | 680.0 | 10.9 | | | G1/1800 |
| FVH (80°-90°) | 0.0 | 0.0 | | | G0/10 |
| BL (0°-30°) | 479.8 | 7.7 | B1/500 | | |
| BM (30°-60°) | 477.1 | 7.7 | B1/1000 | | |
| BH (60°-80°) | 71.1 | 1.1 | B0/110 | | G0/110 |
| BVH (80°-90°) | 0.0 | 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-G1

Type II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 53° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2729.9 | 2729.9 | 2729.9 | 2729.9 | 2729.9 | 2729.9 | 2729.9 | 2729.9 | 2729.9 | 2729.9 | 2729.9 |
| 2.5° | 2691.7 | 2697.8 | 2708.5 | 2722.2 | 2731.4 | 2736.0 | 2736.0 | 2748.9 | 2740.5 | 2733.7 | 2726.0 |
| 5° | 2576.5 | 2582.6 | 2597.1 | 2619.3 | 2641.4 | 2657.4 | 2675.7 | 2689.4 | 2694.8 | 2694.8 | 2681.8 |
| 7.5° | 2414.1 | 2422.5 | 2431.6 | 2462.1 | 2510.2 | 2546.0 | 2577.3 | 2597.1 | 2626.1 | 2635.3 | 2617.0 |
| 10° | 2239.4 | 2247.8 | 2268.4 | 2310.3 | 2365.3 | 2418.7 | 2472.0 | 2497.2 | 2546.8 | 2572.7 | 2552.1 |
| 12.5° | 2091.4 | 2095.2 | 2122.7 | 2173.0 | 2243.2 | 2316.4 | 2381.3 | 2407.2 | 2477.4 | 2516.3 | 2491.9 |
| 15° | 1969.4 | 1971.7 | 1999.1 | 2054.8 | 2135.7 | 2225.7 | 2307.3 | 2334.0 | 2420.2 | 2478.9 | 2442.3 |
| 17.5° | 1877.1 | 1877.9 | 1901.5 | 1961.8 | 2046.4 | 2146.4 | 2243.2 | 2276.0 | 2387.4 | 2458.3 | 2403.4 |
| 20° | 1830.6 | 1828.3 | 1845.1 | 1897.7 | 1977.8 | 2077.7 | 2192.1 | 2232.5 | 2369.1 | 2455.3 | 2373.7 |
| 22.5° | 1831.3 | 1826.0 | 1832.9 | 1870.2 | 1938.1 | 2031.9 | 2160.1 | 2205.8 | 2370.6 | 2468.2 | 2348.5 |
| 25° | 1874.8 | 1867.2 | 1868.7 | 1888.5 | 1936.6 | 2022.0 | 2164.7 | 2213.5 | 2401.1 | 2511.7 | 2339.3 |
| 27.5° | 1948.0 | 1939.7 | 1939.7 | 1949.6 | 1975.5 | 2053.3 | 2221.9 | 2277.5 | 2482.7 | 2596.4 | 2358.4 |
| 30° | 2042.6 | 2034.2 | 2031.2 | 2041.1 | 2062.5 | 2134.1 | 2349.2 | 2407.2 | 2622.3 | 2735.2 | 2419.4 |
| 32.5° | 2150.9 | 2141.0 | 2146.4 | 2160.1 | 2180.7 | 2279.8 | 2513.2 | 2590.3 | 2797.0 | 2922.1 | 2529.2 |
| 35° | 2265.3 | 2257.0 | 2281.4 | 2311.1 | 2343.1 | 2482.0 | 2739.8 | 2806.9 | 3011.3 | 3154.7 | 2697.1 |
| 37.5° | 2374.4 | 2370.6 | 2421.7 | 2484.2 | 2550.6 | 2724.5 | 2970.1 | 3022.0 | 3195.1 | 3407.9 | 2902.2 |
| 40° | 2483.5 | 2482.7 | 2570.4 | 2680.3 | 2786.3 | 2966.3 | 3144.8 | 3187.5 | 3307.2 | 3604.7 | 3099.0 |
| 42.5° | 2605.5 | 2605.5 | 2726.8 | 2873.2 | 3014.4 | 3170.7 | 3272.9 | 3292.0 | 3357.6 | 3718.4 | 3247.0 |
| 45° | 2722.2 | 2729.1 | 2869.4 | 3039.5 | 3206.6 | 3330.1 | 3361.4 | 3362.9 | 3378.2 | 3785.5 | 3369.8 |
| 47.5° | 2814.5 | 2820.6 | 2988.4 | 3184.4 | 3364.5 | 3451.4 | 3456.0 | 3449.1 | 3432.3 | 3849.6 | 3464.4 |
| 50° | 2889.3 | 2898.4 | 3073.8 | 3281.3 | 3472.8 | 3568.1 | 3603.2 | 3596.3 | 3553.6 | 3918.2 | 3530.7 |
| 52.5° | 2925.9 | 2938.8 | 3103.6 | 3329.4 | 3593.3 | 3767.9 | 3865.6 | 3881.6 | 3735.1 | 3956.3 | 3594.0 |
| 55° | 2633.0 | 2652.1 | 2803.8 | 3112.7 | 3660.4 | 4076.9 | 4230.2 | 4227.1 | 3931.9 | 4070.0 | 3748.1 |
| 57.5° | 1988.5 | 1986.9 | 2112.8 | 2450.7 | 3126.5 | 4094.4 | 4454.4 | 4448.3 | 4115.8 | 4201.9 | 3906.0 |
| 60° | 1353.9 | 1344.7 | 1378.3 | 1541.5 | 2186.0 | 3335.5 | 4054.0 | 4136.3 | 3985.3 | 3881.6 | 3316.4 |
| 62.5° | 1114.4 | 1106.0 | 1095.3 | 1050.3 | 1255.5 | 2077.7 | 2800.8 | 2925.9 | 2906.0 | 2697.8 | 2080.0 |
| 65° | 912.2 | 919.1 | 948.8 | 929.8 | 873.3 | 1065.5 | 1453.8 | 1527.8 | 1396.6 | 1175.4 | 726.9 |
| 67.5° | 672.7 | 675.8 | 714.7 | 815.4 | 784.9 | 709.3 | 684.2 | 696.4 | 408.1 | 187.6 | 121.3 |
| 70° | 397.4 | 399.7 | 435.5 | 570.5 | 636.9 | 544.6 | 462.2 | 455.4 | 161.7 | 50.3 | 54.9 |
| 72.5° | 225.0 | 220.4 | 227.3 | 271.5 | 347.0 | 289.1 | 238.0 | 216.6 | 48.8 | 28.2 | 28.2 |
| 75° | 106.8 | 103.7 | 89.2 | 83.9 | 76.3 | 48.8 | 30.5 | 25.9 | 12.2 | 11.4 | 11.4 |
| 77.5° | 0.8 | 2.3 | 1.5 | 2.3 | 2.3 | 1.5 | 0.8 | 0.8 | 2.3 | 2.3 | 3.1 |
| 80° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 82.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 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 |



REPORT NUMBER: P634348

CATALOG NUMBER: GWS-SA3B-750-U-SL3-W-GRSBK

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2729.9 | 2729.9 | 2729.9 | 2729.9 | 2729.9 | 2729.9 | 2729.9 | 2729.9 | 2729.9 | 2729.9 | 2729.9 |
| 2.5° | 2712.3 | 2689.4 | 2684.1 | 2682.6 | 2661.2 | 2638.3 | 2614.7 | 2605.5 | 2591.8 | 2583.4 | 2590.3 |
| 5° | 2661.2 | 2628.4 | 2599.4 | 2572.7 | 2525.4 | 2473.6 | 2428.6 | 2399.6 | 2372.1 | 2353.8 | 2358.4 |
| 7.5° | 2588.7 | 2546.0 | 2479.7 | 2411.8 | 2324.8 | 2247.0 | 2160.1 | 2106.7 | 2057.1 | 2029.7 | 2042.6 |
| 10° | 2511.7 | 2455.3 | 2349.2 | 2234.1 | 2097.5 | 1975.5 | 1851.2 | 1749.7 | 1691.0 | 1635.3 | 1641.4 |
| 12.5° | 2436.2 | 2361.4 | 2202.8 | 2028.1 | 1855.7 | 1675.7 | 1488.1 | 1347.8 | 1251.7 | 1182.2 | 1171.6 |
| 15° | 2366.0 | 2269.9 | 2060.2 | 1829.8 | 1594.9 | 1355.4 | 1115.9 | 915.3 | 803.9 | 735.3 | 730.7 |
| 17.5° | 2303.5 | 2184.5 | 1912.2 | 1622.4 | 1327.9 | 1021.3 | 746.0 | 595.7 | 531.6 | 501.9 | 498.8 |
| 20° | 2243.2 | 2098.3 | 1761.2 | 1411.8 | 1036.6 | 717.0 | 514.9 | 445.4 | 424.8 | 412.6 | 414.2 |
| 22.5° | 2185.3 | 2004.5 | 1602.5 | 1178.4 | 777.2 | 503.4 | 398.9 | 372.2 | 369.9 | 371.5 | 372.2 |
| 25° | 2136.4 | 1918.3 | 1439.3 | 953.4 | 554.5 | 383.7 | 333.3 | 325.7 | 332.6 | 342.5 | 344.0 |
| 27.5° | 2111.3 | 1848.1 | 1279.9 | 726.9 | 401.2 | 312.0 | 289.1 | 292.1 | 304.3 | 315.0 | 316.5 |
| 30° | 2118.1 | 1795.5 | 1115.1 | 527.1 | 308.9 | 263.1 | 255.5 | 261.6 | 273.8 | 283.7 | 285.3 |
| 32.5° | 2166.9 | 1768.8 | 946.6 | 383.7 | 254.0 | 229.6 | 226.5 | 231.1 | 241.8 | 249.4 | 250.2 |
| 35° | 2263.8 | 1774.9 | 786.4 | 293.7 | 218.1 | 204.4 | 203.7 | 206.7 | 212.0 | 217.4 | 218.1 |
| 37.5° | 2406.4 | 1824.5 | 628.5 | 244.1 | 197.5 | 187.6 | 184.6 | 184.6 | 188.4 | 190.7 | 192.2 |
| 40° | 2559.8 | 1899.2 | 503.4 | 215.9 | 183.1 | 172.4 | 166.3 | 164.0 | 167.0 | 170.1 | 170.9 |
| 42.5° | 2686.4 | 1974.0 | 408.8 | 196.0 | 171.6 | 157.1 | 149.5 | 148.0 | 151.8 | 157.1 | 158.7 |
| 45° | 2783.2 | 2031.9 | 340.9 | 180.0 | 158.7 | 142.6 | 134.2 | 134.2 | 141.1 | 150.3 | 151.8 |
| 47.5° | 2871.7 | 2078.5 | 290.6 | 165.5 | 146.4 | 129.7 | 121.3 | 122.8 | 134.2 | 146.4 | 148.7 |
| 50° | 2932.0 | 2115.8 | 253.2 | 152.5 | 136.5 | 119.0 | 111.4 | 114.4 | 128.1 | 142.6 | 144.9 |
| 52.5° | 2996.8 | 2161.6 | 228.8 | 141.1 | 127.4 | 110.6 | 103.7 | 106.0 | 121.3 | 137.3 | 140.3 |
| 55° | 3176.1 | 2314.9 | 228.1 | 125.9 | 111.4 | 99.2 | 96.1 | 96.9 | 112.1 | 130.4 | 134.2 |
| 57.5° | 3322.5 | 2449.9 | 243.3 | 106.0 | 93.1 | 87.0 | 85.4 | 86.2 | 99.9 | 120.5 | 125.1 |
| 60° | 2748.9 | 1903.8 | 201.4 | 87.7 | 77.8 | 76.3 | 74.0 | 75.5 | 88.5 | 106.8 | 110.6 |
| 62.5° | 1626.9 | 1088.4 | 96.1 | 67.1 | 66.4 | 64.8 | 62.5 | 65.6 | 77.8 | 93.8 | 96.1 |
| 65° | 556.0 | 322.6 | 61.0 | 54.9 | 56.4 | 54.2 | 51.9 | 54.9 | 65.6 | 74.7 | 75.5 |
| 67.5° | 106.8 | 85.4 | 48.8 | 45.8 | 46.5 | 42.0 | 41.2 | 44.2 | 50.3 | 51.9 | 51.1 |
| 70° | 55.7 | 49.6 | 37.4 | 37.4 | 35.8 | 29.7 | 29.7 | 32.8 | 32.8 | 30.5 | 29.7 |
| 72.5° | 29.0 | 27.5 | 24.4 | 27.5 | 22.9 | 18.3 | 18.3 | 19.8 | 18.3 | 15.3 | 15.3 |
| 75° | 11.4 | 11.4 | 10.7 | 13.7 | 9.9 | 8.4 | 7.6 | 9.2 | 6.9 | 5.3 | 5.3 |
| 77.5° | 3.1 | 3.1 | 3.1 | 3.8 | 2.3 | 2.3 | 1.5 | 1.5 | 0.8 | 0.0 | 0.0 |
| 80° | 0.0 | 0.8 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 82.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 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
1121 Highway 74 South
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: SP1-1908-441-4-R4

Test Date: 10/02/2019

Luminaire Tested: SA1C-750-U-5WQ

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

Test Information

Test Method: LM-79-2008
 Report Number: SP1-1908-441-4-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-750-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): 4884
 CIE u': 0.2101
 CIE v': 0.4904
 Duv: 0.0037
 CIE x: 0.3493
 CIE y: 0.3624
 CIE z: 0.2884
 Peak Wavelength (nm): 444
 Dominant Wavelength (nm): 571
 Purity: 13.7
 R_f: 74.9
 R_g: 96.3

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 73.5 | | |
| R1: | 70.5 | R9: | -28.4 |
| R2: | 77.7 | R10: | 48.6 |
| R3: | 84.6 | R11: | 73.2 |
| R4: | 74.7 | R12: | 50.7 |
| R5: | 71.9 | R13: | 71.2 |
| R6: | 70.7 | R14: | 91.4 |
| R7: | 81.2 | | |
| R8: | 56.9 | | |



Test Conditions

Stabilization Time: 240M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.0./44%
 Sphere Temperature (°C): 25.7

REPORT NUMBER: SP1-1908-441-4-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 5000K 4-step quadrangle

REPORT NUMBER: SP1-1908-441-4-R4

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 | 2945 | NR | 490 | 37941 | NR | 620 | 88803 | NR | 750 | 3908 | NR | 880 | 2997 | NR |
| 365 | 2596 | NR | 495 | 48525 | NR | 625 | 80578 | NR | 755 | 3988 | NR | 885 | 2927 | NR |
| 370 | 2732 | NR | 500 | 60609 | NR | 630 | 73127 | NR | 760 | 3335 | NR | 890 | 2649 | NR |
| 375 | 2894 | NR | 505 | 72036 | NR | 635 | 66244 | NR | 765 | 3438 | NR | 895 | 2828 | NR |
| 380 | 2822 | NR | 510 | 82168 | NR | 640 | 59440 | NR | 770 | 3427 | NR | 900 | 1407 | NR |
| 385 | 2394 | NR | 515 | 90898 | NR | 645 | 52864 | NR | 775 | 2759 | NR | 905 | 2224 | NR |
| 390 | 2370 | NR | 520 | 97142 | NR | 650 | 47085 | NR | 780 | 2340 | NR | 910 | 2905 | NR |
| 395 | 2267 | NR | 525 | 103255 | NR | 655 | 41789 | NR | 785 | 2412 | NR | 915 | 3350 | NR |
| 400 | 2262 | NR | 530 | 106697 | NR | 660 | 37064 | NR | 790 | 1999 | NR | 920 | 3114 | NR |
| 405 | 3000 | NR | 535 | 110081 | NR | 665 | 32299 | NR | 795 | 2054 | NR | 925 | 2834 | NR |
| 410 | 5324 | NR | 540 | 112494 | NR | 670 | 28142 | NR | 800 | 2331 | NR | 930 | 2271 | NR |
| 415 | 10725 | NR | 545 | 115513 | NR | 675 | 24505 | NR | 805 | 2648 | NR | 935 | 2228 | NR |
| 420 | 22128 | NR | 550 | 117203 | NR | 680 | 21162 | NR | 810 | 2485 | NR | 940 | 2833 | NR |
| 425 | 44095 | NR | 555 | 119753 | NR | 685 | 18400 | NR | 815 | 2409 | NR | 945 | 2941 | NR |
| 430 | 77002 | NR | 560 | 122602 | NR | 690 | 16065 | NR | 820 | 2221 | NR | 950 | 2323 | NR |
| 435 | 119881 | NR | 565 | 124314 | NR | 695 | 13860 | NR | 825 | 1562 | NR | 955 | 1667 | NR |
| 440 | 164454 | NR | 570 | 126775 | NR | 700 | 12177 | NR | 830 | 2249 | NR | 960 | 749 | NR |
| 445 | 179997 | NR | 575 | 127511 | NR | 705 | 10757 | NR | 835 | 2573 | NR | 965 | 2669 | NR |
| 450 | 142822 | NR | 580 | 127577 | NR | 710 | 9601 | NR | 840 | 2764 | NR | 970 | 3968 | NR |
| 455 | 90008 | NR | 585 | 126153 | NR | 715 | 8944 | NR | 845 | 3109 | NR | 975 | 3886 | NR |
| 460 | 60557 | NR | 590 | 123678 | NR | 720 | 7947 | NR | 850 | 2963 | NR | 980 | 2788 | NR |
| 465 | 43305 | NR | 595 | 119774 | NR | 725 | 7062 | NR | 855 | 2336 | NR | 985 | 3496 | NR |
| 470 | 31089 | NR | 600 | 115733 | NR | 730 | 6004 | NR | 860 | 2118 | NR | 990 | 2913 | NR |
| 475 | 26278 | NR | 605 | 109231 | NR | 735 | 5594 | NR | 865 | 3144 | NR | 995 | 4659 | NR |
| 480 | 27060 | NR | 610 | 102408 | NR | 740 | 5165 | NR | 870 | 3069 | NR | 1000 | 1308 | NR |
| 485 | 30698 | NR | 615 | 96015 | NR | 745 | 4687 | NR | 875 | 3311 | NR | | | |

REPORT NUMBER: SP1-1908-441-4-R4

Scotopic Flux vs. Wavelength



Scotopic Lumens: 13493.5 S/P: 1.77

| 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 | 2945 | NR | 490 | 37941 | NR | 620 | 88803 | NR | 750 | 3908 | NR | 880 | 2997 | NR |
| 365 | 2596 | NR | 495 | 48525 | NR | 625 | 80578 | NR | 755 | 3988 | NR | 885 | 2927 | NR |
| 370 | 2732 | NR | 500 | 60609 | NR | 630 | 73127 | NR | 760 | 3335 | NR | 890 | 2649 | NR |
| 375 | 2894 | NR | 505 | 72036 | NR | 635 | 66244 | NR | 765 | 3438 | NR | 895 | 2828 | NR |
| 380 | 2822 | NR | 510 | 82168 | NR | 640 | 59440 | NR | 770 | 3427 | NR | 900 | 1407 | NR |
| 385 | 2394 | NR | 515 | 90898 | NR | 645 | 52864 | NR | 775 | 2759 | NR | 905 | 2224 | NR |
| 390 | 2370 | NR | 520 | 97142 | NR | 650 | 47085 | NR | 780 | 2340 | NR | 910 | 2905 | NR |
| 395 | 2267 | NR | 525 | 103255 | NR | 655 | 41789 | NR | 785 | 2412 | NR | 915 | 3350 | NR |
| 400 | 2262 | NR | 530 | 106697 | NR | 660 | 37064 | NR | 790 | 1999 | NR | 920 | 3114 | NR |
| 405 | 3000 | NR | 535 | 110081 | NR | 665 | 32299 | NR | 795 | 2054 | NR | 925 | 2834 | NR |
| 410 | 5324 | NR | 540 | 112494 | NR | 670 | 28142 | NR | 800 | 2331 | NR | 930 | 2271 | NR |
| 415 | 10725 | NR | 545 | 115513 | NR | 675 | 24505 | NR | 805 | 2648 | NR | 935 | 2228 | NR |
| 420 | 22128 | NR | 550 | 117203 | NR | 680 | 21162 | NR | 810 | 2485 | NR | 940 | 2833 | NR |
| 425 | 44095 | NR | 555 | 119753 | NR | 685 | 18400 | NR | 815 | 2409 | NR | 945 | 2941 | NR |
| 430 | 77002 | NR | 560 | 122602 | NR | 690 | 16065 | NR | 820 | 2221 | NR | 950 | 2323 | NR |
| 435 | 119881 | NR | 565 | 124314 | NR | 695 | 13860 | NR | 825 | 1562 | NR | 955 | 1667 | NR |
| 440 | 164454 | NR | 570 | 126775 | NR | 700 | 12177 | NR | 830 | 2249 | NR | 960 | 749 | NR |
| 445 | 179997 | NR | 575 | 127511 | NR | 705 | 10757 | NR | 835 | 2573 | NR | 965 | 2669 | NR |
| 450 | 142822 | NR | 580 | 127577 | NR | 710 | 9601 | NR | 840 | 2764 | NR | 970 | 3968 | NR |
| 455 | 90008 | NR | 585 | 126153 | NR | 715 | 8944 | NR | 845 | 3109 | NR | 975 | 3886 | NR |
| 460 | 60557 | NR | 590 | 123678 | NR | 720 | 7947 | NR | 850 | 2963 | NR | 980 | 2788 | NR |
| 465 | 43305 | NR | 595 | 119774 | NR | 725 | 7062 | NR | 855 | 2336 | NR | 985 | 3496 | NR |
| 470 | 31089 | NR | 600 | 115733 | NR | 730 | 6004 | NR | 860 | 2118 | NR | 990 | 2913 | NR |
| 475 | 26278 | NR | 605 | 109231 | NR | 735 | 5594 | NR | 865 | 3144 | NR | 995 | 4659 | NR |
| 480 | 27060 | NR | 610 | 102408 | NR | 740 | 5165 | NR | 870 | 3069 | NR | 1000 | 1308 | NR |
| 485 | 30698 | NR | 615 | 96015 | NR | 745 | 4687 | NR | 875 | 3311 | NR | | | |

REPORT NUMBER: SP1-1908-441-4-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 5378.9 M/P: 0.71

| 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 | 2945 | NR | 490 | 37941 | NR | 620 | 88803 | NR | 750 | 3908 | NR | 880 | 2997 | NR |
| 365 | 2596 | NR | 495 | 48525 | NR | 625 | 80578 | NR | 755 | 3988 | NR | 885 | 2927 | NR |
| 370 | 2732 | NR | 500 | 60609 | NR | 630 | 73127 | NR | 760 | 3335 | NR | 890 | 2649 | NR |
| 375 | 2894 | NR | 505 | 72036 | NR | 635 | 66244 | NR | 765 | 3438 | NR | 895 | 2828 | NR |
| 380 | 2822 | NR | 510 | 82168 | NR | 640 | 59440 | NR | 770 | 3427 | NR | 900 | 1407 | NR |
| 385 | 2394 | NR | 515 | 90898 | NR | 645 | 52864 | NR | 775 | 2759 | NR | 905 | 2224 | NR |
| 390 | 2370 | NR | 520 | 97142 | NR | 650 | 47085 | NR | 780 | 2340 | NR | 910 | 2905 | NR |
| 395 | 2267 | NR | 525 | 103255 | NR | 655 | 41789 | NR | 785 | 2412 | NR | 915 | 3350 | NR |
| 400 | 2262 | NR | 530 | 106697 | NR | 660 | 37064 | NR | 790 | 1999 | NR | 920 | 3114 | NR |
| 405 | 3000 | NR | 535 | 110081 | NR | 665 | 32299 | NR | 795 | 2054 | NR | 925 | 2834 | NR |
| 410 | 5324 | NR | 540 | 112494 | NR | 670 | 28142 | NR | 800 | 2331 | NR | 930 | 2271 | NR |
| 415 | 10725 | NR | 545 | 115513 | NR | 675 | 24505 | NR | 805 | 2648 | NR | 935 | 2228 | NR |
| 420 | 22128 | NR | 550 | 117203 | NR | 680 | 21162 | NR | 810 | 2485 | NR | 940 | 2833 | NR |
| 425 | 44095 | NR | 555 | 119753 | NR | 685 | 18400 | NR | 815 | 2409 | NR | 945 | 2941 | NR |
| 430 | 77002 | NR | 560 | 122602 | NR | 690 | 16065 | NR | 820 | 2221 | NR | 950 | 2323 | NR |
| 435 | 119881 | NR | 565 | 124314 | NR | 695 | 13860 | NR | 825 | 1562 | NR | 955 | 1667 | NR |
| 440 | 164454 | NR | 570 | 126775 | NR | 700 | 12177 | NR | 830 | 2249 | NR | 960 | 749 | NR |
| 445 | 179997 | NR | 575 | 127511 | NR | 705 | 10757 | NR | 835 | 2573 | NR | 965 | 2669 | NR |
| 450 | 142822 | NR | 580 | 127577 | NR | 710 | 9601 | NR | 840 | 2764 | NR | 970 | 3968 | NR |
| 455 | 90008 | NR | 585 | 126153 | NR | 715 | 8944 | NR | 845 | 3109 | NR | 975 | 3886 | NR |
| 460 | 60557 | NR | 590 | 123678 | NR | 720 | 7947 | NR | 850 | 2963 | NR | 980 | 2788 | NR |
| 465 | 43305 | NR | 595 | 119774 | NR | 725 | 7062 | NR | 855 | 2336 | NR | 985 | 3496 | NR |
| 470 | 31089 | NR | 600 | 115733 | NR | 730 | 6004 | NR | 860 | 2118 | NR | 990 | 2913 | NR |
| 475 | 26278 | NR | 605 | 109231 | NR | 735 | 5594 | NR | 865 | 3144 | NR | 995 | 4659 | NR |
| 480 | 27060 | NR | 610 | 102408 | NR | 740 | 5165 | NR | 870 | 3069 | NR | 1000 | 1308 | NR |
| 485 | 30698 | NR | 615 | 96015 | NR | 745 | 4687 | NR | 875 | 3311 | NR | | | |

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TM-30-18

Summary

$R_f = 74.9$
 $R_g = 96.3$
 $CIE R_a = 73.5$
 $R_g = -28.4$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 61 | CES51 = 90 | CES76 = 52 |
| CES02 = 60 | CES27 = 84 | CES52 = 91 | CES77 = 71 |
| CES03 = 30 | CES28 = 81 | CES53 = 79 | CES78 = 54 |
| CES04 = 69 | CES29 = 58 | CES54 = 83 | CES79 = 80 |
| CES05 = 46 | CES30 = 67 | CES55 = 83 | CES80 = 77 |
| CES06 = 50 | CES31 = 63 | CES56 = 73 | CES81 = 77 |
| CES07 = 39 | CES32 = 59 | CES57 = 72 | CES82 = 90 |
| CES08 = 38 | CES33 = 69 | CES58 = 73 | CES83 = 86 |
| CES09 = 29 | CES34 = 69 | CES59 = 88 | CES84 = 88 |
| CES10 = 73 | CES35 = 83 | CES60 = 93 | CES85 = 84 |
| CES11 = 56 | CES36 = 95 | CES61 = 88 | CES86 = 75 |
| CES12 = 61 | CES37 = 78 | CES62 = 85 | CES87 = 78 |
| CES13 = 41 | CES38 = 76 | CES63 = 77 | CES88 = 79 |
| CES14 = 74 | CES39 = 93 | CES64 = 74 | CES89 = 75 |
| CES15 = 70 | CES40 = 86 | CES65 = 67 | CES90 = 77 |
| CES16 = 46 | CES41 = 87 | CES66 = 69 | CES91 = 89 |
| CES17 = 49 | CES42 = 78 | CES67 = 67 | CES92 = 66 |
| CES18 = 55 | CES43 = 75 | CES68 = 73 | CES93 = 80 |
| CES19 = 71 | CES44 = 99 | CES69 = 81 | CES94 = 57 |
| CES20 = 64 | CES45 = 83 | CES70 = 63 | CES95 = 71 |
| CES21 = 85 | CES46 = 81 | CES71 = 60 | CES96 = 78 |
| CES22 = 77 | CES47 = 80 | CES72 = 86 | CES97 = 85 |
| CES23 = 91 | CES48 = 72 | CES73 = 53 | CES98 = 75 |
| CES24 = 90 | CES49 = 81 | CES74 = 96 | CES99 = 62 |
| CES25 = 71 | CES50 = 89 | CES75 = 58 | |



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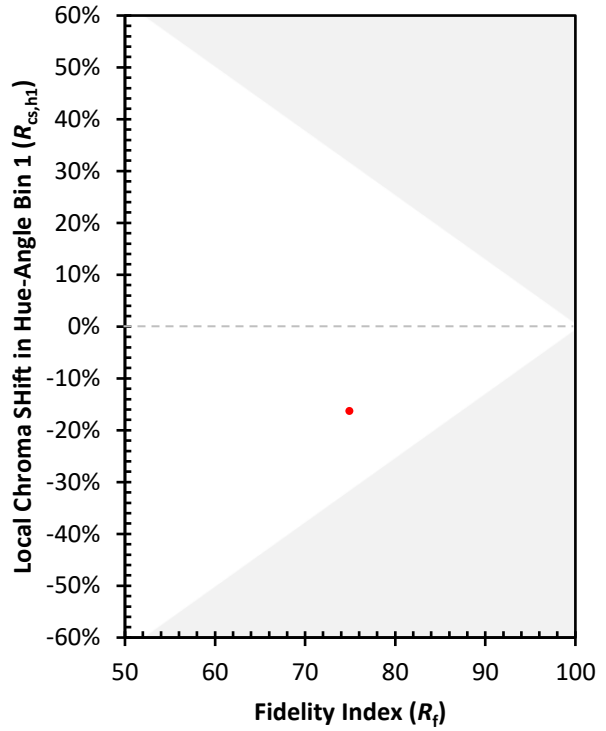
Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)