

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: P639808

Luminaire Tested: GWS-SA5C-750-U-T2-W-GRSBK

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P639808
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-20)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA5C-750-U-T2-W-GRSBK
Description: GALLEON WALL SLIM LUMINAIRE. (5) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II OPTICS W/ FACTORY INSTALLED GLARE SHIELD, BK
Light Source: (80) 5000K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 14468.7 lumens
Efficiency: N/A
Efficacy: 91.9 lumens/watt
Luminous Opening: Rectangular (W 1.5' x L: 1' x H: 0')
IES Classification: Type II - Short
BUG Rating: B2 - U0 - G1

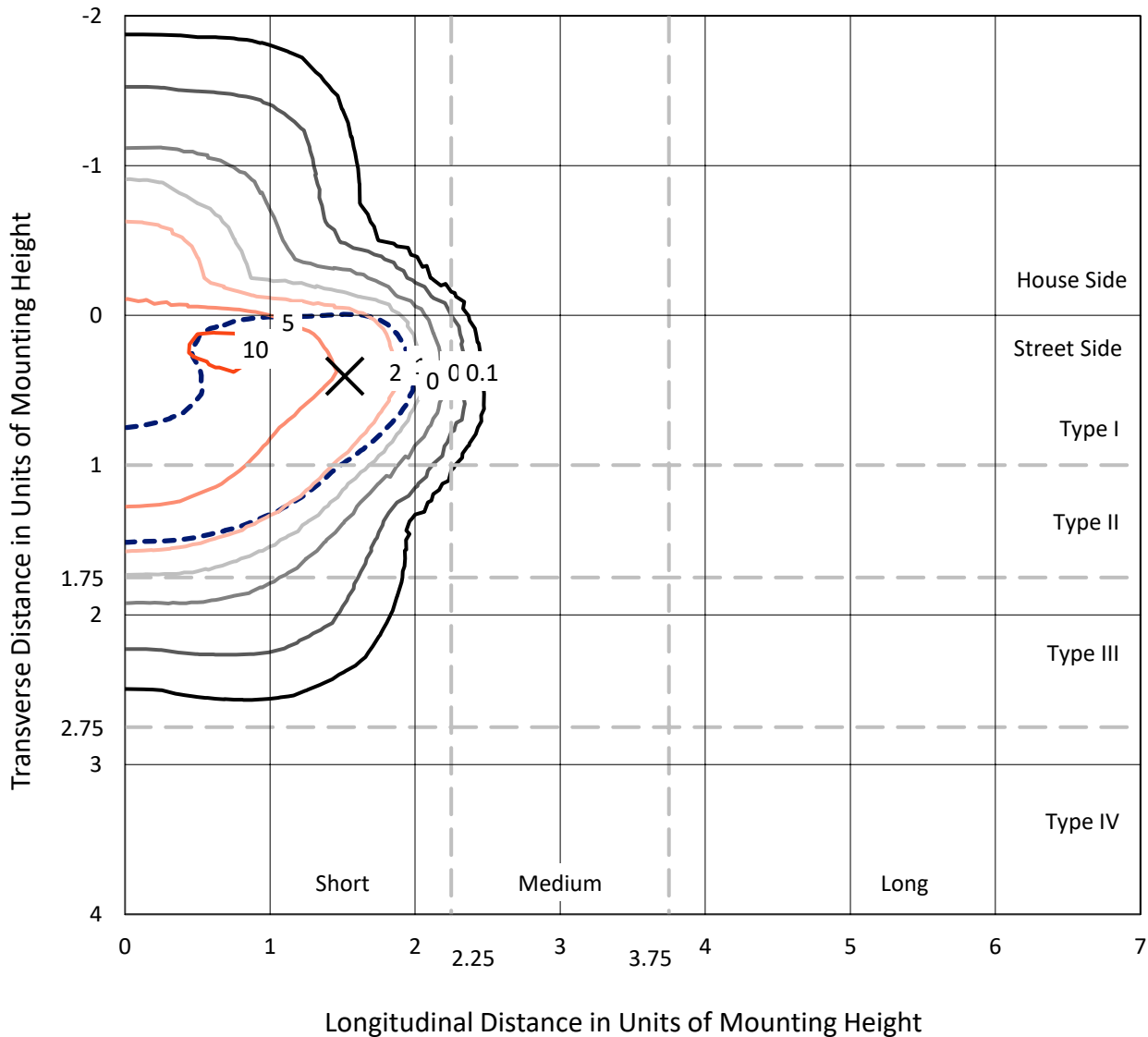
Input Watts (W): 157.5
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

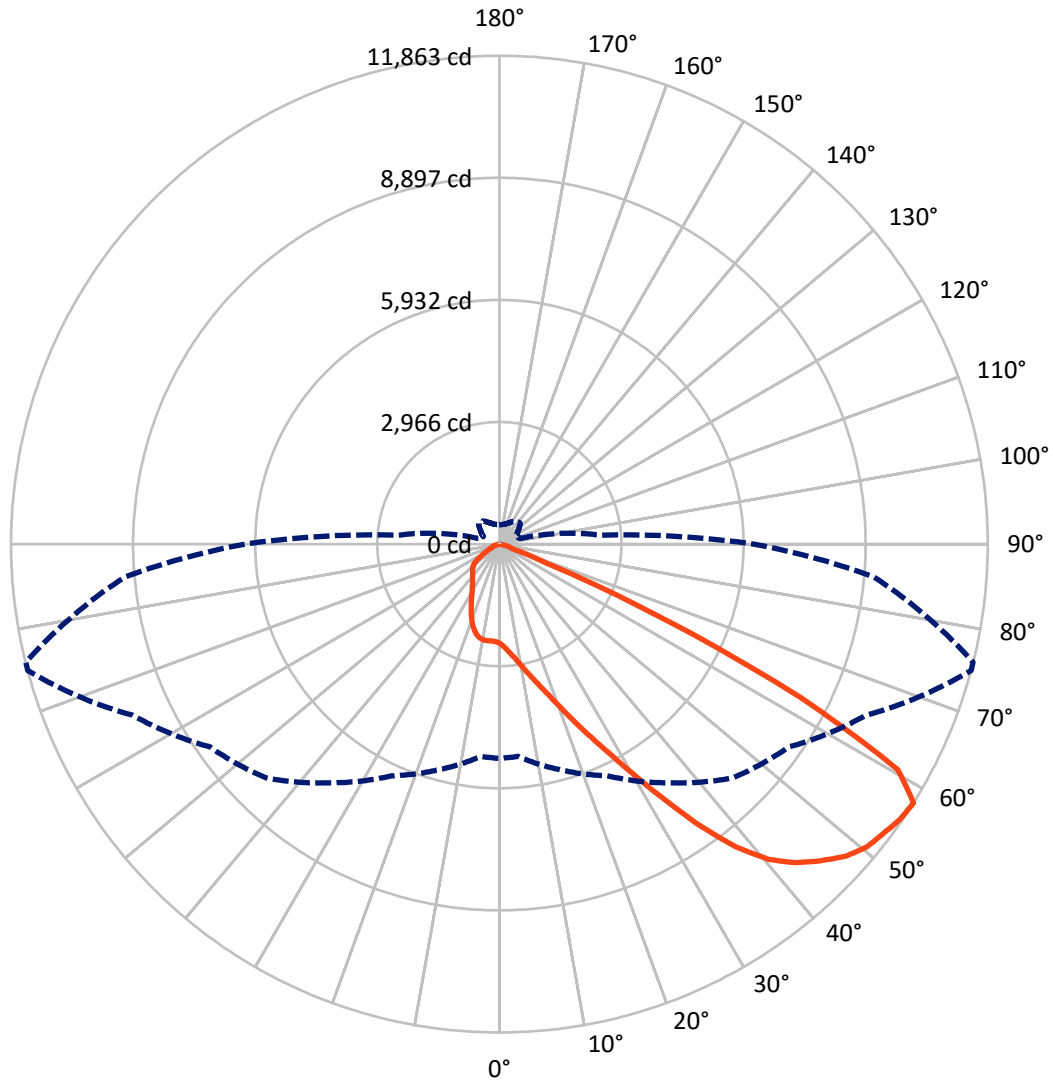
✕ Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 11.3 fc
 Type II - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 75-Deg Lateral - - - Horizontal Cone Through 57.5-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 2363.4 | 0.0 | 2363.4 |
| | % Fixture | 16.3 | 0.0 | 16.3 |
| Street Side | Lumens | 12105.3 | 0.0 | 12105.3 |
| | % Fixture | 83.7 | 0.0 | 83.7 |
| Total | Lumens | 14468.7 | 0.0 | 14468.7 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 245.6 | 1.7 |
| 10°-20° | 797.7 | 5.5 |
| 20°-30° | 1460.8 | 10.1 |
| 30°-40° | 2423.5 | 16.8 |
| 40°-50° | 3701.3 | 25.6 |
| 50°-60° | 4159.1 | 28.7 |
| 60°-70° | 1534.1 | 10.6 |
| 70°-80° | 146.6 | 1.0 |
| 80°-90° | 0.1 | 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° | 14468.7 | 100.0 |
| 0°-180° | 14468.7 | 100.0 |

Coefficient of Utilization



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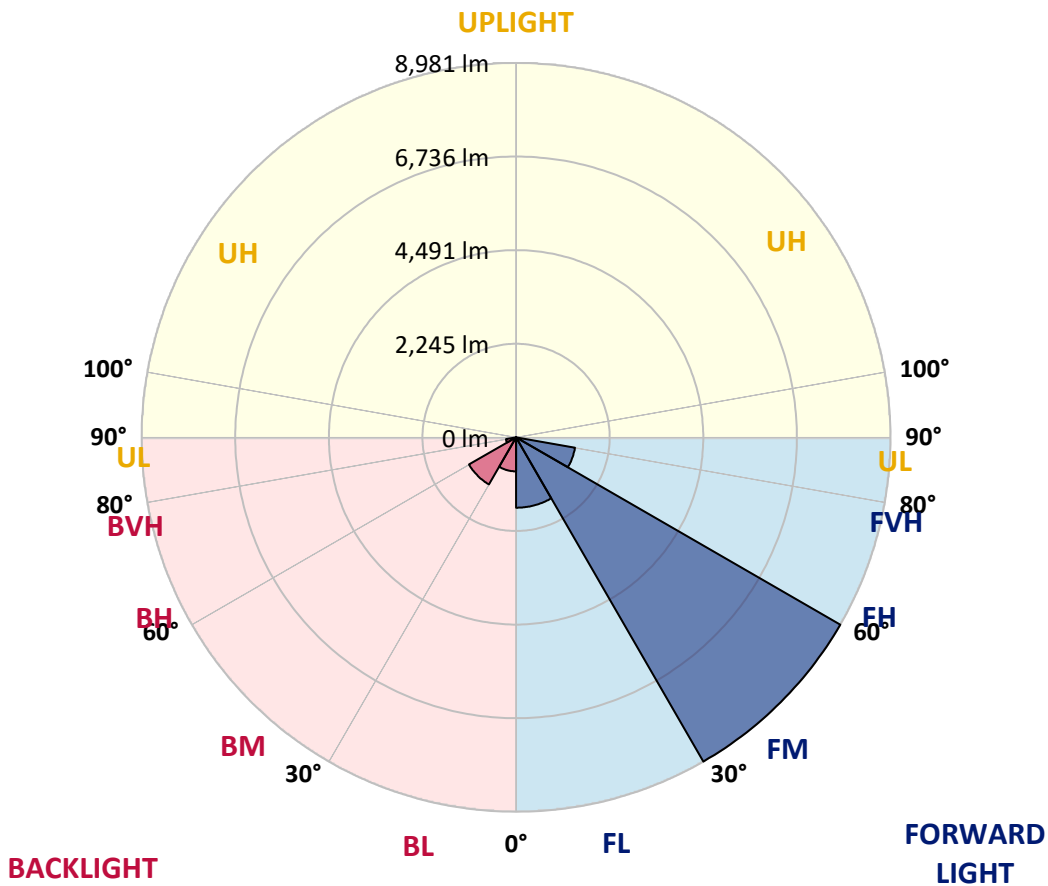
CATALOG NUMBER: GWS-SA5C-750-U-T2-W-GRSBK

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1688.5 | 11.7 | | | |
| FM (30°-60°) | 8981.5 | 62.1 | | | |
| FH (60°-80°) | 1435.2 | 9.9 | | | G1/1800 |
| FVH (80°-90°) | 0.1 | 0.0 | | | G0/10 |
| BL (0°-30°) | 815.5 | 5.6 | B2/1000 | | |
| BM (30°-60°) | 1302.4 | 9.0 | B2/2500 | | |
| BH (60°-80°) | 245.4 | 1.7 | B1/500 | | G1/500 |
| BVH (80°-90°) | 0.1 | 0.0 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B2-U0-G1

Type II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 76° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|--------|
| 0° | 2413.2 | 2413.2 | 2413.2 | 2413.2 | 2413.2 | 2413.2 | 2413.2 | 2413.2 | 2413.2 | 2413.2 | 2413.2 |
| 2.5° | 2696.1 | 2724.0 | 2715.3 | 2697.8 | 2687.3 | 2650.7 | 2628.0 | 2561.6 | 2514.5 | 2509.2 | 2465.6 |
| 5° | 3036.6 | 3031.3 | 3024.3 | 3003.4 | 2985.9 | 2928.3 | 2860.2 | 2748.4 | 2648.9 | 2636.7 | 2544.1 |
| 7.5° | 3223.4 | 3226.9 | 3230.4 | 3226.9 | 3214.7 | 3171.0 | 3095.9 | 2965.0 | 2813.0 | 2802.6 | 2655.9 |
| 10° | 3300.2 | 3307.2 | 3324.7 | 3357.8 | 3387.5 | 3384.0 | 3340.4 | 3205.9 | 3019.1 | 3001.6 | 2804.3 |
| 12.5° | 3336.9 | 3345.6 | 3373.6 | 3436.4 | 3516.7 | 3579.6 | 3586.6 | 3466.1 | 3260.1 | 3232.1 | 2980.7 |
| 15° | 3387.5 | 3396.3 | 3431.2 | 3513.3 | 3630.2 | 3754.2 | 3834.5 | 3757.7 | 3527.2 | 3497.5 | 3174.5 |
| 17.5° | 3410.2 | 3422.5 | 3473.1 | 3581.4 | 3733.3 | 3923.6 | 4105.2 | 4098.2 | 3843.3 | 3820.6 | 3399.8 |
| 20° | 3453.9 | 3462.6 | 3508.0 | 3625.0 | 3808.4 | 4082.5 | 4388.1 | 4498.1 | 4229.2 | 4196.0 | 3672.2 |
| 22.5° | 3591.8 | 3595.3 | 3616.3 | 3689.6 | 3860.7 | 4197.7 | 4676.2 | 4964.3 | 4684.9 | 4641.3 | 3977.7 |
| 25° | 3817.1 | 3815.3 | 3824.1 | 3836.3 | 3962.0 | 4314.7 | 4953.8 | 5489.9 | 5207.0 | 5159.9 | 4323.5 |
| 27.5° | 4103.4 | 4103.4 | 4124.4 | 4089.5 | 4140.1 | 4459.7 | 5228.0 | 6094.1 | 5814.7 | 5748.3 | 4702.4 |
| 30° | 4440.5 | 4438.7 | 4487.6 | 4431.7 | 4447.4 | 4688.4 | 5523.1 | 6752.4 | 6548.1 | 6466.0 | 5138.9 |
| 32.5° | 4897.9 | 4887.5 | 4943.3 | 4866.5 | 4814.1 | 5034.1 | 5882.8 | 7440.3 | 7426.4 | 7300.6 | 5687.2 |
| 35° | 5475.9 | 5458.5 | 5475.9 | 5400.8 | 5306.5 | 5517.8 | 6354.2 | 8126.6 | 8400.7 | 8268.0 | 6340.3 |
| 37.5° | 6050.4 | 6106.3 | 6125.5 | 5996.3 | 5919.4 | 6130.7 | 6921.7 | 8741.2 | 9331.4 | 9193.5 | 7019.5 |
| 40° | 6727.9 | 6710.5 | 6776.8 | 6631.9 | 6583.0 | 6817.0 | 7477.0 | 9198.7 | 10068.3 | 9937.3 | 7623.7 |
| 42.5° | 7227.3 | 7258.7 | 7340.8 | 7260.5 | 7222.1 | 7442.1 | 7943.2 | 9465.9 | 10579.9 | 10450.7 | 8055.0 |
| 45° | 7826.2 | 7848.9 | 7880.4 | 7814.0 | 7773.9 | 7990.4 | 8280.2 | 9582.9 | 10969.3 | 10829.6 | 8344.8 |
| 47.5° | 8474.1 | 8491.5 | 8491.5 | 8355.3 | 8226.1 | 8315.2 | 8505.5 | 9649.2 | 11327.3 | 11192.8 | 8559.6 |
| 50° | 8938.5 | 8947.3 | 9024.1 | 8928.1 | 8646.9 | 8509.0 | 8608.5 | 9713.8 | 11564.7 | 11439.0 | 8629.5 |
| 52.5° | 8526.4 | 8516.0 | 8769.2 | 8968.2 | 9043.3 | 8769.2 | 8786.6 | 9808.1 | 11680.0 | 11571.7 | 8685.3 |
| 55° | 7180.2 | 7162.7 | 7518.9 | 8002.6 | 8664.4 | 9015.4 | 9001.4 | 9864.0 | 11807.5 | 11741.1 | 8887.9 |
| 57.5° | 5205.3 | 5175.6 | 5671.5 | 6209.3 | 7077.1 | 8028.8 | 8587.6 | 9832.6 | 11863.3 | 11858.1 | 9123.6 |
| 60° | 3129.1 | 3104.7 | 3572.6 | 4138.4 | 4808.9 | 5765.8 | 6693.0 | 8807.6 | 11116.0 | 11126.5 | 8510.7 |
| 62.5° | 1926.0 | 1948.7 | 2371.3 | 2659.4 | 2909.1 | 3197.2 | 3733.3 | 5924.7 | 8234.8 | 8302.9 | 5980.6 |
| 65° | 1295.6 | 1313.1 | 1704.2 | 2067.4 | 2067.4 | 1690.3 | 1451.0 | 2832.3 | 4393.3 | 4278.1 | 2828.8 |
| 67.5° | 869.6 | 888.8 | 1197.9 | 1622.2 | 1683.3 | 1178.7 | 588.5 | 845.1 | 1224.1 | 1187.4 | 700.2 |
| 70° | 511.6 | 532.6 | 798.0 | 1112.3 | 1225.8 | 820.7 | 392.9 | 358.0 | 347.5 | 337.0 | 272.4 |
| 72.5° | 228.7 | 237.5 | 406.9 | 565.8 | 516.9 | 345.7 | 277.6 | 286.4 | 270.7 | 265.4 | 221.8 |
| 75° | 69.8 | 73.3 | 104.8 | 122.2 | 124.0 | 124.0 | 167.6 | 225.3 | 213.0 | 214.8 | 171.1 |
| 77.5° | 17.5 | 17.5 | 27.9 | 26.2 | 14.0 | 12.2 | 31.4 | 50.6 | 52.4 | 47.1 | 34.9 |
| 80° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 |
| 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: P639808

CATALOG NUMBER: GWS-SA5C-750-U-T2-W-GRSBK

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2413.2 | 2413.2 | 2413.2 | 2413.2 | 2413.2 | 2413.2 | 2413.2 | 2413.2 | 2413.2 | 2413.2 | 2413.2 |
| 2.5° | 2446.4 | 2401.0 | 2371.3 | 2329.4 | 2299.7 | 2268.2 | 2240.3 | 2217.6 | 2205.4 | 2201.9 | 2203.6 |
| 5° | 2502.2 | 2430.6 | 2360.8 | 2280.5 | 2224.6 | 2172.2 | 2130.3 | 2097.1 | 2081.4 | 2076.2 | 2076.2 |
| 7.5° | 2587.8 | 2488.3 | 2364.3 | 2238.6 | 2144.3 | 2062.2 | 2013.3 | 1976.6 | 1962.7 | 1959.2 | 1948.7 |
| 10° | 2699.5 | 2563.3 | 2359.0 | 2163.5 | 2030.8 | 1945.2 | 1910.3 | 1899.8 | 1905.0 | 1906.8 | 1905.0 |
| 12.5° | 2834.0 | 2641.9 | 2325.9 | 2053.5 | 1910.3 | 1857.9 | 1861.4 | 1889.3 | 1920.8 | 1936.5 | 1940.0 |
| 15° | 2977.2 | 2713.5 | 2250.8 | 1922.5 | 1807.3 | 1805.5 | 1856.2 | 1920.8 | 1981.9 | 2008.1 | 2015.1 |
| 17.5° | 3137.8 | 2771.1 | 2135.5 | 1782.8 | 1718.2 | 1768.8 | 1859.6 | 1959.2 | 2041.2 | 2084.9 | 2093.6 |
| 20° | 3314.2 | 2818.3 | 1988.9 | 1651.9 | 1639.6 | 1730.4 | 1856.2 | 1978.4 | 2079.7 | 2128.6 | 2137.3 |
| 22.5° | 3497.5 | 2851.5 | 1819.5 | 1531.4 | 1568.0 | 1686.8 | 1823.0 | 1941.7 | 2037.8 | 2093.6 | 2100.6 |
| 25° | 3707.1 | 2855.0 | 1646.6 | 1430.1 | 1501.7 | 1627.4 | 1742.7 | 1840.4 | 1920.8 | 1969.7 | 1974.9 |
| 27.5° | 3890.4 | 2813.0 | 1493.0 | 1348.0 | 1440.6 | 1554.1 | 1630.9 | 1685.0 | 1740.9 | 1768.8 | 1770.6 |
| 30° | 4101.7 | 2739.7 | 1348.0 | 1281.7 | 1377.7 | 1463.3 | 1501.7 | 1513.9 | 1519.1 | 1524.4 | 1517.4 |
| 32.5° | 4353.1 | 2650.7 | 1239.8 | 1217.1 | 1306.1 | 1363.7 | 1374.2 | 1349.8 | 1320.1 | 1278.2 | 1267.7 |
| 35° | 4662.2 | 2570.3 | 1150.7 | 1154.2 | 1227.5 | 1262.5 | 1253.7 | 1201.4 | 1143.7 | 1093.1 | 1084.4 |
| 37.5° | 4997.5 | 2502.2 | 1082.6 | 1093.1 | 1142.0 | 1166.4 | 1140.2 | 1082.6 | 1056.4 | 1012.8 | 1014.5 |
| 40° | 5294.3 | 2446.4 | 1021.5 | 1032.0 | 1054.7 | 1077.4 | 1035.5 | 997.1 | 1045.9 | 1042.5 | 1045.9 |
| 42.5° | 5505.6 | 2399.2 | 969.1 | 963.9 | 979.6 | 995.3 | 963.9 | 944.7 | 1026.7 | 1004.0 | 1016.3 |
| 45° | 5629.6 | 2355.6 | 925.5 | 894.0 | 918.5 | 946.4 | 925.5 | 901.0 | 929.0 | 824.2 | 815.5 |
| 47.5° | 5713.4 | 2331.1 | 887.0 | 825.9 | 869.6 | 918.5 | 874.8 | 815.5 | 775.3 | 684.5 | 677.5 |
| 50° | 5722.1 | 2318.9 | 841.6 | 756.1 | 812.0 | 864.3 | 813.7 | 731.6 | 674.0 | 633.9 | 628.6 |
| 52.5° | 5767.5 | 2343.3 | 778.8 | 667.0 | 728.1 | 812.0 | 777.0 | 695.0 | 616.4 | 581.5 | 574.5 |
| 55° | 5970.1 | 2446.4 | 674.0 | 544.8 | 633.9 | 771.8 | 747.4 | 619.9 | 544.8 | 523.8 | 518.6 |
| 57.5° | 6179.6 | 2467.3 | 530.8 | 431.3 | 551.8 | 714.2 | 682.7 | 571.0 | 497.7 | 473.2 | 468.0 |
| 60° | 5650.5 | 2032.5 | 398.1 | 356.2 | 487.2 | 660.0 | 632.1 | 541.3 | 455.7 | 426.1 | 420.8 |
| 62.5° | 3712.3 | 1098.3 | 316.1 | 302.1 | 410.3 | 558.8 | 576.2 | 488.9 | 406.9 | 375.4 | 373.7 |
| 65° | 1711.2 | 509.9 | 242.7 | 239.2 | 321.3 | 445.3 | 495.9 | 427.8 | 344.0 | 316.1 | 316.1 |
| 67.5° | 466.2 | 253.2 | 190.3 | 176.4 | 218.3 | 298.6 | 361.5 | 319.5 | 244.5 | 211.3 | 209.5 |
| 70° | 232.2 | 204.3 | 171.1 | 151.9 | 157.2 | 185.1 | 213.0 | 178.1 | 124.0 | 101.3 | 99.5 |
| 72.5° | 190.3 | 167.6 | 144.9 | 129.2 | 118.7 | 113.5 | 110.0 | 89.1 | 57.6 | 43.7 | 41.9 |
| 75° | 141.4 | 120.5 | 103.0 | 83.8 | 71.6 | 66.4 | 59.4 | 43.7 | 24.4 | 14.0 | 12.2 |
| 77.5° | 31.4 | 29.7 | 27.9 | 21.0 | 19.2 | 15.7 | 12.2 | 8.7 | 3.5 | 0.0 | 0.0 |
| 80° | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 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
 Rf: 74.9
 Rg: 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 $R_a = 73.5$
 $R_9 = -28.4$



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)