

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: P639381

Luminaire Tested: GWS-SA5B-760-U-T3R-W-GRSWH

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P639381
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-17)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA5B-760-U-T3R-W-GRSWH
Description: GALLEON WALL SLIM LUMINAIRE. (5) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III ROADWAY OPTICS W/ FACTORY INSTALLED GLARE SHIELD, WH
Light Source: (80) 5700K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 15705.6 lumens
Efficiency: N/A
Efficacy: 135.7 lumens/watt
Luminous Opening: Rectangular (W 1.5' x L: 1' x H: 0')
IES Classification: Type II - Short
BUG Rating: B3 - U0 - G2

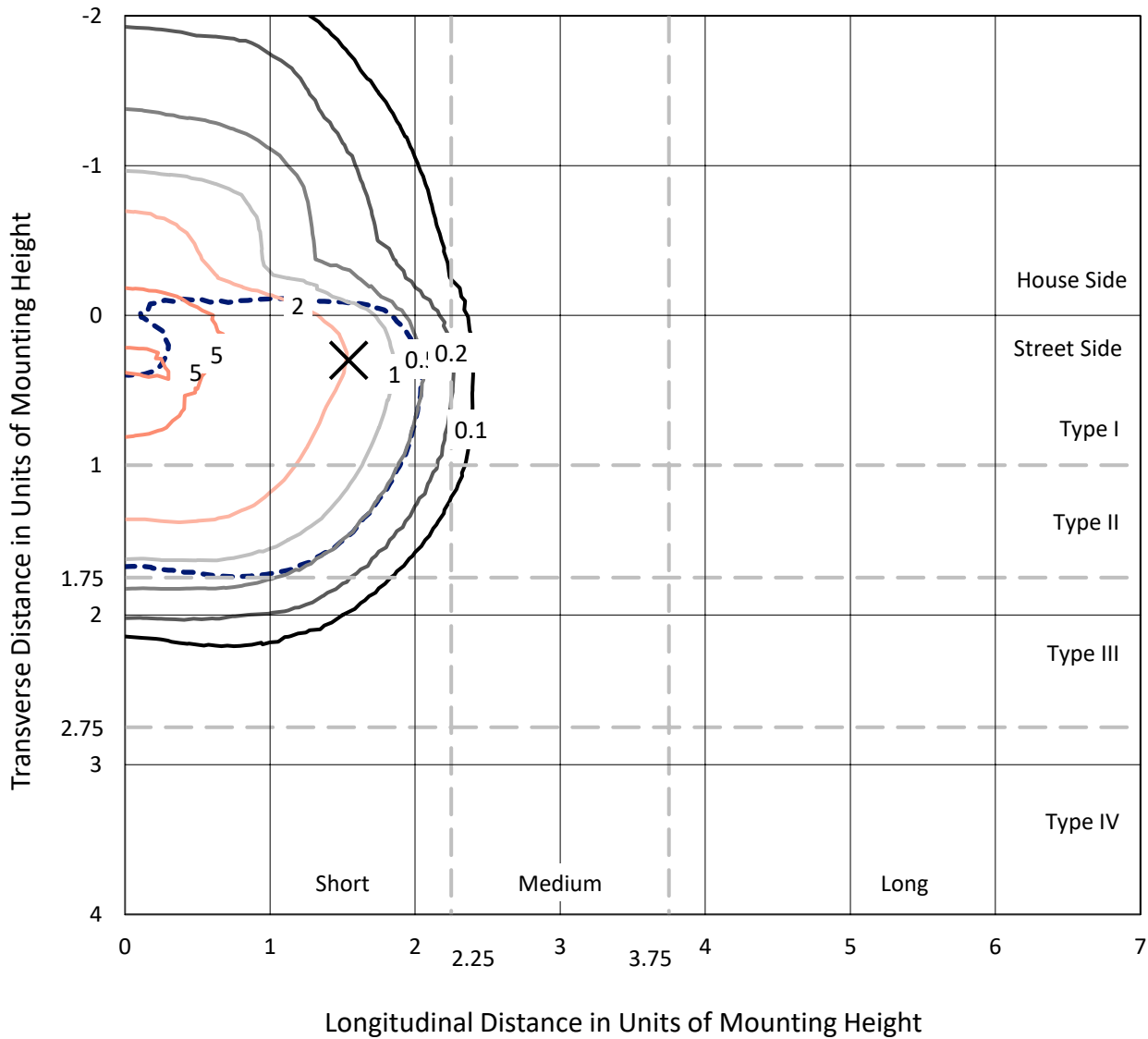
Input Watts (W): 115.7
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

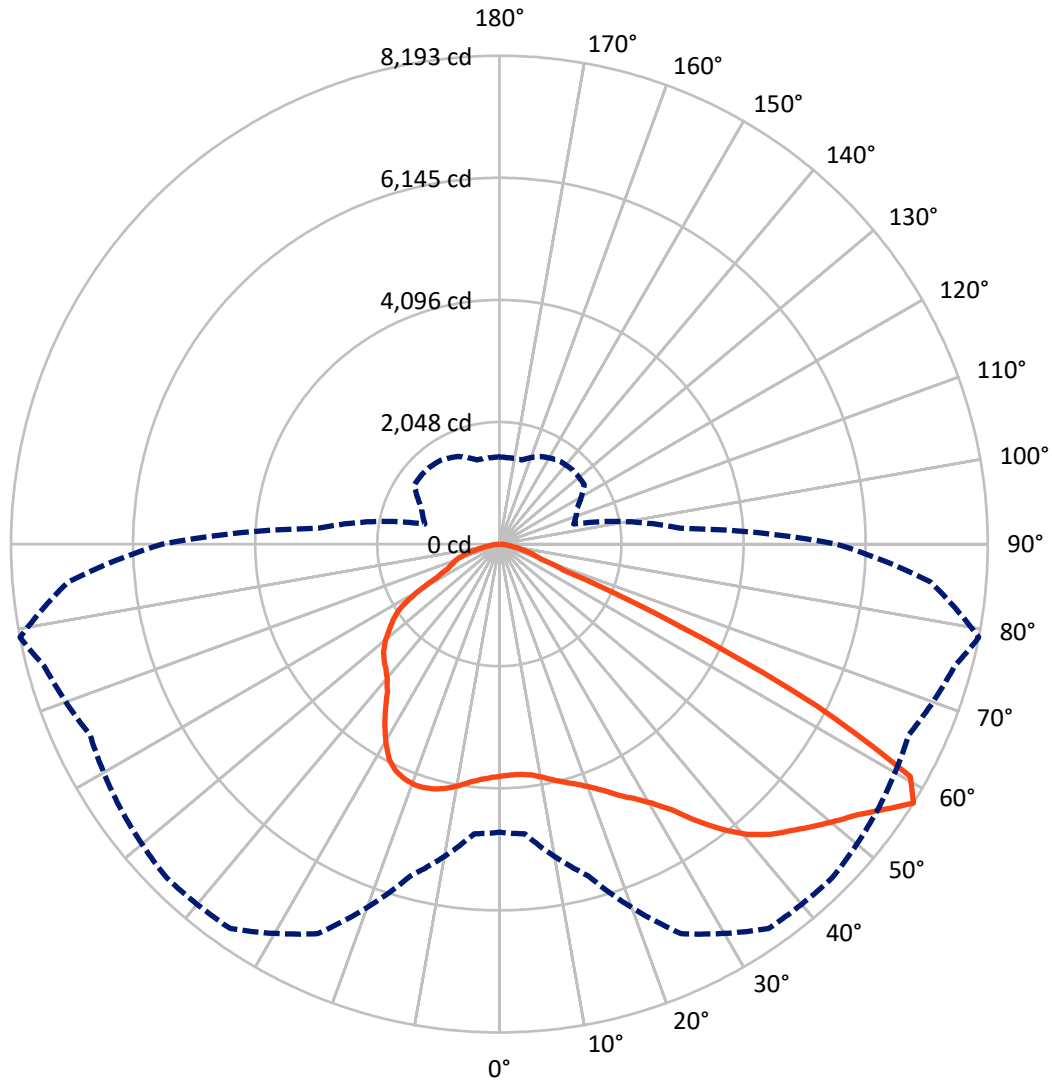
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 6.3 fc
 Type II - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 79-Deg Lateral - - - Horizontal Cone Through 57.5-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 4668.6 | 0.0 | 4668.6 |
| | % Fixture | 29.7 | 0.0 | 29.7 |
| Street Side | Lumens | 11037.1 | 0.0 | 11037.1 |
| | % Fixture | 70.3 | 0.0 | 70.3 |
| Total | Lumens | 15705.6 | 0.0 | 15705.6 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 360.5 | 2.3 |
| 10°-20° | 1001.7 | 6.4 |
| 20°-30° | 1697.9 | 10.8 |
| 30°-40° | 2598.9 | 16.5 |
| 40°-50° | 3465.4 | 22.1 |
| 50°-60° | 4002.2 | 25.5 |
| 60°-70° | 2079.7 | 13.2 |
| 70°-80° | 442.1 | 2.8 |
| 80°-90° | 57.3 | 0.4 |
| 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° | 15705.6 | 100.0 |
| 0°-180° | 15705.6 | 100.0 |

Coefficient of Utilization



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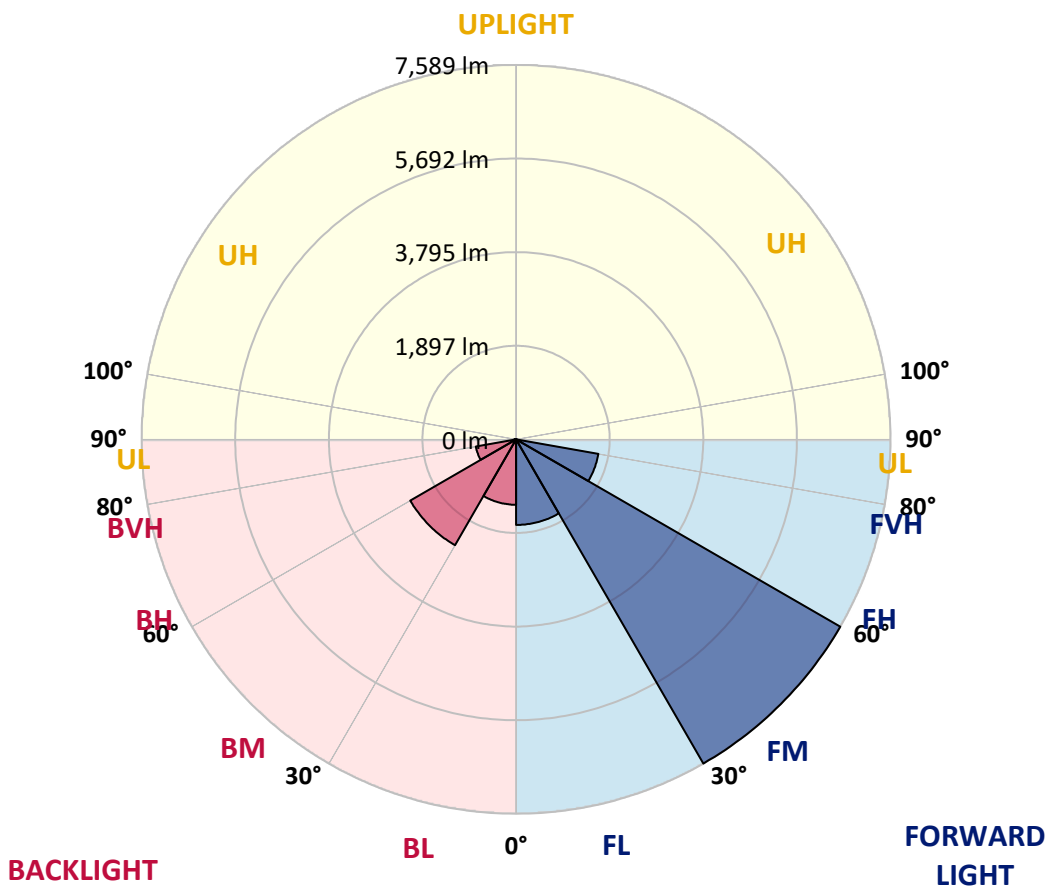
CATALOG NUMBER: GWS-SA5B-760-U-T3R-W-GRSWH

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1734.3 | 11.0 | | | |
| FM (30°-60°) | 7589.4 | 48.3 | | | |
| FH (60°-80°) | 1693.5 | 10.8 | | | G1/1800 |
| FVH (80°-90°) | 20.0 | 0.1 | | | G1/100 |
| BL (0°-30°) | 1325.8 | 8.4 | B3/2500 | | |
| BM (30°-60°) | 2477.1 | 15.8 | B2/2500 | | |
| BH (60°-80°) | 828.3 | 5.3 | B2/1000 | | G2/1000 |
| BVH (80°-90°) | 37.3 | 0.2 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B3-U0-G2

Type II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 79° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 3892.2 | 3892.2 | 3892.2 | 3892.2 | 3892.2 | 3892.2 | 3892.2 | 3892.2 | 3892.2 | 3892.2 | 3892.2 |
| 2.5° | 3715.0 | 3707.3 | 3709.9 | 3720.1 | 3758.7 | 3786.9 | 3816.4 | 3843.4 | 3869.1 | 3876.8 | 3883.2 |
| 5° | 3582.7 | 3568.6 | 3572.5 | 3589.2 | 3634.1 | 3681.6 | 3734.3 | 3798.5 | 3860.1 | 3880.7 | 3907.6 |
| 7.5° | 3489.0 | 3486.4 | 3492.8 | 3518.5 | 3566.0 | 3611.0 | 3679.0 | 3770.2 | 3876.8 | 3911.5 | 3959.0 |
| 10° | 3364.4 | 3359.3 | 3385.0 | 3437.6 | 3516.0 | 3587.9 | 3668.8 | 3776.6 | 3925.6 | 3977.0 | 4050.2 |
| 12.5° | 3265.6 | 3263.0 | 3290.0 | 3363.1 | 3463.3 | 3577.6 | 3689.3 | 3810.0 | 3991.1 | 4061.7 | 4151.6 |
| 15° | 3323.3 | 3311.8 | 3313.1 | 3364.4 | 3454.3 | 3589.2 | 3740.7 | 3870.4 | 4056.6 | 4146.5 | 4262.0 |
| 17.5° | 3491.6 | 3471.0 | 3455.6 | 3464.6 | 3516.0 | 3655.9 | 3819.0 | 3951.3 | 4132.3 | 4237.6 | 4378.9 |
| 20° | 3724.0 | 3712.4 | 3670.1 | 3641.8 | 3653.4 | 3776.6 | 3942.3 | 4065.6 | 4231.2 | 4349.4 | 4500.9 |
| 22.5° | 4036.0 | 4007.8 | 3950.0 | 3905.1 | 3870.4 | 3966.7 | 4119.5 | 4226.1 | 4368.6 | 4491.9 | 4649.8 |
| 25° | 4422.6 | 4381.5 | 4290.3 | 4219.7 | 4145.2 | 4244.1 | 4380.2 | 4461.1 | 4557.4 | 4671.7 | 4821.9 |
| 27.5° | 4816.8 | 4782.1 | 4680.7 | 4585.6 | 4493.2 | 4554.8 | 4716.6 | 4762.9 | 4752.6 | 4836.0 | 4964.5 |
| 30° | 5236.7 | 5193.0 | 5096.7 | 4994.0 | 4874.6 | 4914.4 | 5059.5 | 5082.6 | 4973.5 | 5042.8 | 5130.1 |
| 32.5° | 5679.7 | 5637.3 | 5553.9 | 5434.5 | 5299.6 | 5315.0 | 5354.8 | 5376.7 | 5272.7 | 5312.5 | 5379.2 |
| 35° | 6130.5 | 6090.6 | 6005.9 | 5887.8 | 5788.9 | 5695.1 | 5595.0 | 5682.3 | 5621.9 | 5699.0 | 5693.9 |
| 37.5° | 6542.7 | 6502.9 | 6450.2 | 6359.0 | 6189.5 | 6004.6 | 5773.5 | 5881.3 | 5975.1 | 6072.7 | 6056.0 |
| 40° | 6821.3 | 6794.4 | 6807.2 | 6793.1 | 6574.8 | 6208.8 | 5860.8 | 5978.9 | 6234.5 | 6401.4 | 6392.4 |
| 42.5° | 7061.5 | 7034.5 | 7109.0 | 7162.9 | 6906.1 | 6397.6 | 5903.2 | 6016.2 | 6400.1 | 6660.8 | 6648.0 |
| 45° | 7168.0 | 7160.3 | 7283.6 | 7454.4 | 7209.1 | 6597.9 | 6012.3 | 6093.2 | 6526.0 | 6859.8 | 6811.0 |
| 47.5° | 7040.9 | 7067.9 | 7310.6 | 7599.5 | 7460.8 | 6835.4 | 6235.8 | 6256.3 | 6690.3 | 7075.6 | 6938.2 |
| 50° | 6787.9 | 6847.0 | 7174.5 | 7603.4 | 7644.5 | 7103.8 | 6545.2 | 6493.9 | 6911.2 | 7305.4 | 7005.0 |
| 52.5° | 6419.4 | 6481.0 | 7015.2 | 7573.8 | 7749.7 | 7414.6 | 6957.4 | 6884.2 | 7189.9 | 7535.3 | 7016.5 |
| 55° | 5573.1 | 5656.6 | 6650.5 | 7507.0 | 7852.5 | 7697.1 | 7422.3 | 7273.3 | 7549.4 | 7851.2 | 7130.8 |
| 57.5° | 4834.8 | 4878.4 | 5761.9 | 7210.4 | 7873.0 | 7905.1 | 7753.6 | 7576.4 | 7906.4 | 8192.8 | 7259.2 |
| 60° | 3548.1 | 3558.3 | 4353.2 | 5966.1 | 7242.5 | 7784.4 | 7726.6 | 7463.4 | 7736.9 | 7919.3 | 6671.1 |
| 62.5° | 2004.5 | 2005.8 | 2640.2 | 3982.1 | 5410.1 | 6344.9 | 6380.9 | 6148.4 | 5918.6 | 5972.5 | 4643.4 |
| 65° | 752.5 | 823.1 | 1205.8 | 1957.0 | 3119.2 | 3745.8 | 3894.8 | 3948.7 | 3566.0 | 3328.5 | 2489.9 |
| 67.5° | 503.4 | 520.1 | 703.7 | 1006.8 | 1388.1 | 1602.6 | 1792.7 | 1797.8 | 1315.0 | 1172.4 | 981.1 |
| 70° | 384.0 | 400.6 | 553.5 | 720.4 | 703.7 | 649.8 | 702.4 | 683.2 | 706.3 | 725.5 | 746.1 |
| 72.5° | 286.4 | 303.1 | 428.9 | 508.5 | 422.5 | 416.1 | 471.3 | 523.9 | 572.7 | 593.3 | 625.4 |
| 75° | 190.1 | 202.9 | 288.9 | 272.2 | 233.7 | 276.1 | 344.1 | 396.8 | 425.0 | 449.4 | 473.8 |
| 77.5° | 120.7 | 129.7 | 154.1 | 124.6 | 129.7 | 161.8 | 200.3 | 247.8 | 274.8 | 299.2 | 312.0 |
| 80° | 55.2 | 53.9 | 52.6 | 59.1 | 73.2 | 95.0 | 120.7 | 149.0 | 169.5 | 179.8 | 187.5 |
| 82.5° | 21.8 | 24.4 | 27.0 | 32.1 | 39.8 | 51.4 | 68.1 | 87.3 | 104.0 | 106.6 | 113.0 |
| 85° | 9.0 | 10.3 | 11.6 | 14.1 | 18.0 | 23.1 | 28.3 | 39.8 | 50.1 | 53.9 | 57.8 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 2.6 | 3.9 | 6.4 | 11.6 | 12.8 | 14.1 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



REPORT NUMBER: P639381

CATALOG NUMBER: GWS-SA5B-760-U-T3R-W-GRSWH

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 3892.2 | 3892.2 | 3892.2 | 3892.2 | 3892.2 | 3892.2 | 3892.2 | 3892.2 | 3892.2 | 3892.2 | 3892.2 |
| 2.5° | 3917.9 | 3901.2 | 3929.5 | 3948.7 | 3966.7 | 3947.4 | 3941.0 | 3924.3 | 3921.7 | 3921.7 | 3930.7 |
| 5° | 3953.8 | 3942.3 | 3971.8 | 3983.4 | 3982.1 | 3939.7 | 3914.0 | 3880.7 | 3864.0 | 3864.0 | 3866.5 |
| 7.5° | 4018.1 | 4011.6 | 4028.3 | 4010.4 | 3969.3 | 3883.2 | 3798.5 | 3727.8 | 3680.3 | 3655.9 | 3663.6 |
| 10° | 4124.6 | 4116.9 | 4102.8 | 4036.0 | 3917.9 | 3739.4 | 3566.0 | 3437.6 | 3360.6 | 3316.9 | 3319.5 |
| 12.5° | 4228.7 | 4215.8 | 4165.7 | 4018.1 | 3775.4 | 3491.6 | 3264.3 | 3120.4 | 3035.7 | 2984.3 | 2972.8 |
| 15° | 4342.9 | 4309.6 | 4201.7 | 3925.6 | 3542.9 | 3188.5 | 2950.9 | 2795.6 | 2704.4 | 2673.6 | 2672.3 |
| 17.5° | 4452.1 | 4393.0 | 4197.8 | 3761.2 | 3264.3 | 2871.3 | 2632.5 | 2536.2 | 2520.8 | 2534.9 | 2538.7 |
| 20° | 4562.5 | 4467.5 | 4155.5 | 3533.9 | 2933.0 | 2555.4 | 2432.2 | 2472.0 | 2529.7 | 2568.3 | 2577.3 |
| 22.5° | 4676.8 | 4529.1 | 4059.1 | 3241.2 | 2583.7 | 2342.3 | 2393.6 | 2480.9 | 2552.9 | 2604.2 | 2609.4 |
| 25° | 4805.2 | 4586.9 | 3915.3 | 2882.9 | 2303.7 | 2283.2 | 2384.6 | 2477.1 | 2554.1 | 2613.2 | 2623.5 |
| 27.5° | 4878.4 | 4588.2 | 3713.7 | 2514.3 | 2175.3 | 2260.1 | 2362.8 | 2450.1 | 2527.2 | 2591.4 | 2602.9 |
| 30° | 4950.3 | 4553.5 | 3394.0 | 2215.1 | 2138.1 | 2233.1 | 2325.6 | 2406.5 | 2479.7 | 2542.6 | 2556.7 |
| 32.5° | 5051.8 | 4521.4 | 3025.4 | 2043.1 | 2116.3 | 2207.4 | 2283.2 | 2355.1 | 2411.6 | 2439.9 | 2447.6 |
| 35° | 5177.6 | 4480.3 | 2633.8 | 1968.6 | 2102.1 | 2186.9 | 2253.7 | 2292.2 | 2219.0 | 2203.6 | 2220.3 |
| 37.5° | 5353.6 | 4441.8 | 2243.4 | 1936.5 | 2093.1 | 2179.2 | 2238.2 | 2139.4 | 2049.5 | 2013.5 | 2026.4 |
| 40° | 5543.6 | 4420.0 | 1978.9 | 1910.8 | 2097.0 | 2186.9 | 2174.0 | 2027.6 | 1898.0 | 1822.2 | 1819.6 |
| 42.5° | 5705.4 | 4386.6 | 1809.3 | 1894.1 | 2107.3 | 2216.4 | 2086.7 | 1928.8 | 1736.1 | 1691.2 | 1692.5 |
| 45° | 5814.6 | 4301.8 | 1719.5 | 1876.1 | 2116.3 | 2222.8 | 2045.6 | 1792.7 | 1655.2 | 1627.0 | 1625.7 |
| 47.5° | 5859.5 | 4147.8 | 1661.7 | 1847.9 | 2115.0 | 2170.2 | 1962.2 | 1736.1 | 1598.7 | 1591.0 | 1596.2 |
| 50° | 5830.0 | 3894.8 | 1602.6 | 1792.7 | 2084.1 | 2115.0 | 1865.8 | 1686.1 | 1560.2 | 1602.6 | 1633.4 |
| 52.5° | 5720.8 | 3567.3 | 1532.0 | 1716.9 | 2028.9 | 2052.0 | 1817.0 | 1655.2 | 1532.0 | 1588.5 | 1612.9 |
| 55° | 5692.6 | 3301.5 | 1442.1 | 1618.0 | 1946.7 | 1940.3 | 1765.7 | 1639.8 | 1512.7 | 1490.9 | 1494.7 |
| 57.5° | 5655.3 | 3042.1 | 1293.1 | 1440.8 | 1738.7 | 1749.0 | 1716.9 | 1621.9 | 1462.6 | 1456.2 | 1462.6 |
| 60° | 4913.1 | 2332.0 | 1153.2 | 1243.0 | 1428.0 | 1483.2 | 1661.7 | 1588.5 | 1381.7 | 1354.8 | 1353.5 |
| 62.5° | 3209.1 | 1412.5 | 1026.0 | 1083.8 | 1163.4 | 1227.6 | 1515.3 | 1492.2 | 1293.1 | 1276.4 | 1288.0 |
| 65° | 1725.9 | 1006.8 | 933.6 | 968.2 | 1011.9 | 1060.7 | 1255.9 | 1329.1 | 1168.6 | 1109.5 | 1110.8 |
| 67.5° | 882.2 | 856.5 | 864.2 | 888.6 | 922.0 | 946.4 | 1013.2 | 1077.4 | 996.5 | 946.4 | 945.1 |
| 70° | 755.1 | 775.6 | 787.2 | 801.3 | 823.1 | 819.3 | 825.7 | 837.3 | 830.8 | 806.4 | 805.2 |
| 72.5° | 643.4 | 675.5 | 678.0 | 680.6 | 688.3 | 670.3 | 658.8 | 639.5 | 640.8 | 644.6 | 645.9 |
| 75° | 489.3 | 520.1 | 527.8 | 523.9 | 531.6 | 508.5 | 493.1 | 473.8 | 450.7 | 446.9 | 449.4 |
| 77.5° | 318.5 | 342.9 | 354.4 | 351.9 | 355.7 | 337.7 | 330.0 | 309.5 | 282.5 | 272.2 | 272.2 |
| 80° | 192.6 | 206.7 | 215.7 | 218.3 | 222.2 | 209.3 | 196.5 | 178.5 | 166.9 | 155.4 | 155.4 |
| 82.5° | 116.9 | 125.8 | 132.3 | 132.3 | 136.1 | 122.0 | 111.7 | 98.9 | 93.7 | 83.5 | 83.5 |
| 85° | 59.1 | 65.5 | 68.1 | 66.8 | 64.2 | 52.6 | 48.8 | 42.4 | 39.8 | 34.7 | 34.7 |
| 87.5° | 14.1 | 18.0 | 18.0 | 12.8 | 12.8 | 6.4 | 3.9 | 1.3 | 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: SP1-1908-441-9-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

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| 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 $R_a = 71.7$
 $R_g = -27.1$



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)