

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: P640615

Luminaire Tested: GWS-SA5E-730-U-SL2-W-GRSWH

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P640615
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-29)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA5E-730-U-SL2-W-GRSWH
Description: GALLEON WALL SLIM LUMINAIRE. (5) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II SPILL LIGHT ELIMINATOR OPTICS W/ FACTORY INSTALLED GLARE SHIELD, WH
Light Source: (80) 3000K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 29115.9 lumens
Efficiency: N/A
Efficacy: 108.0 lumens/watt
Luminous Opening: Rectangular (W 1.5' x L: 1' x H: 0')
IES Classification: Type II - Short
BUG Rating: B4 - U0 - G3

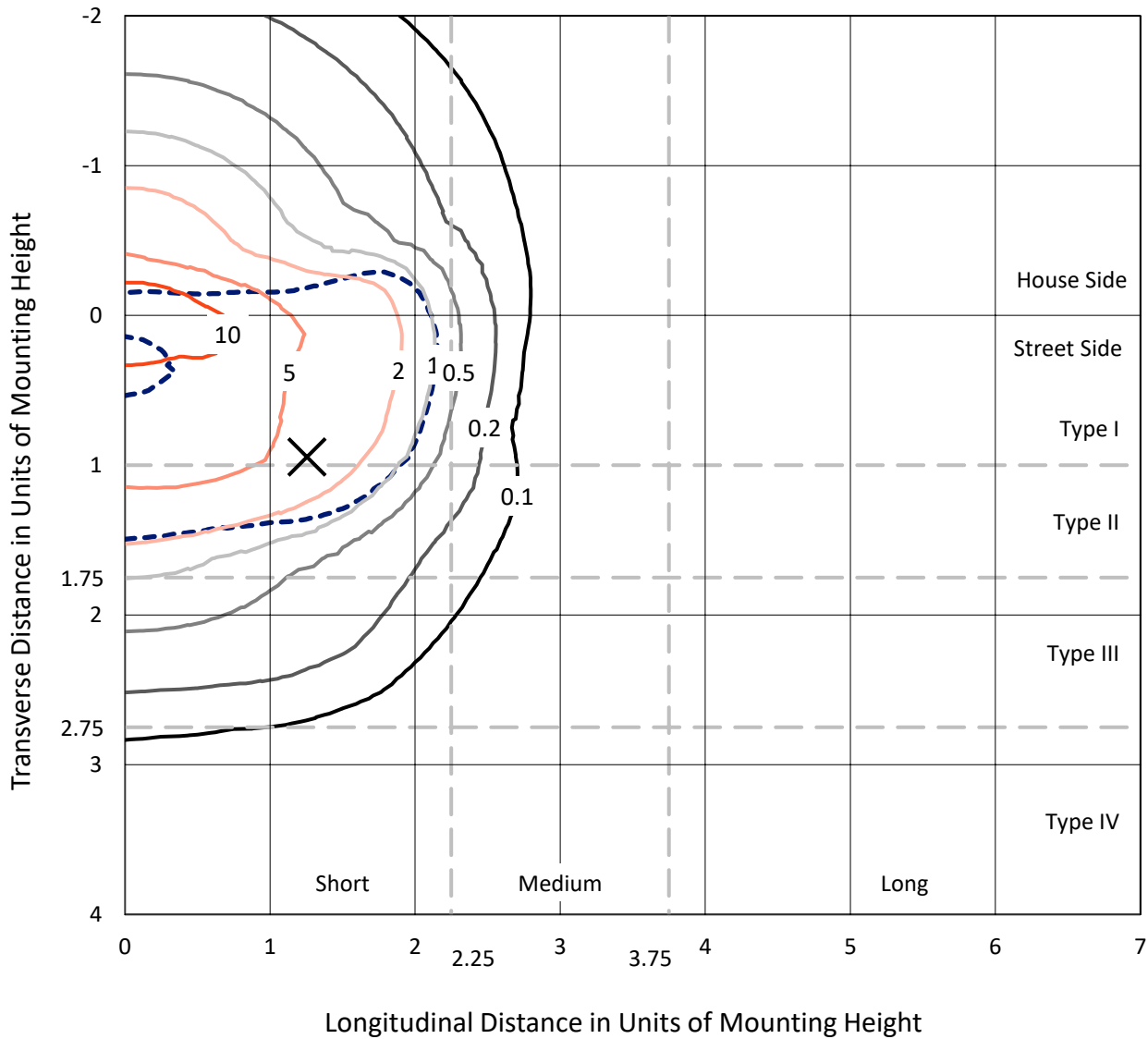
Input Watts (W): 269.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

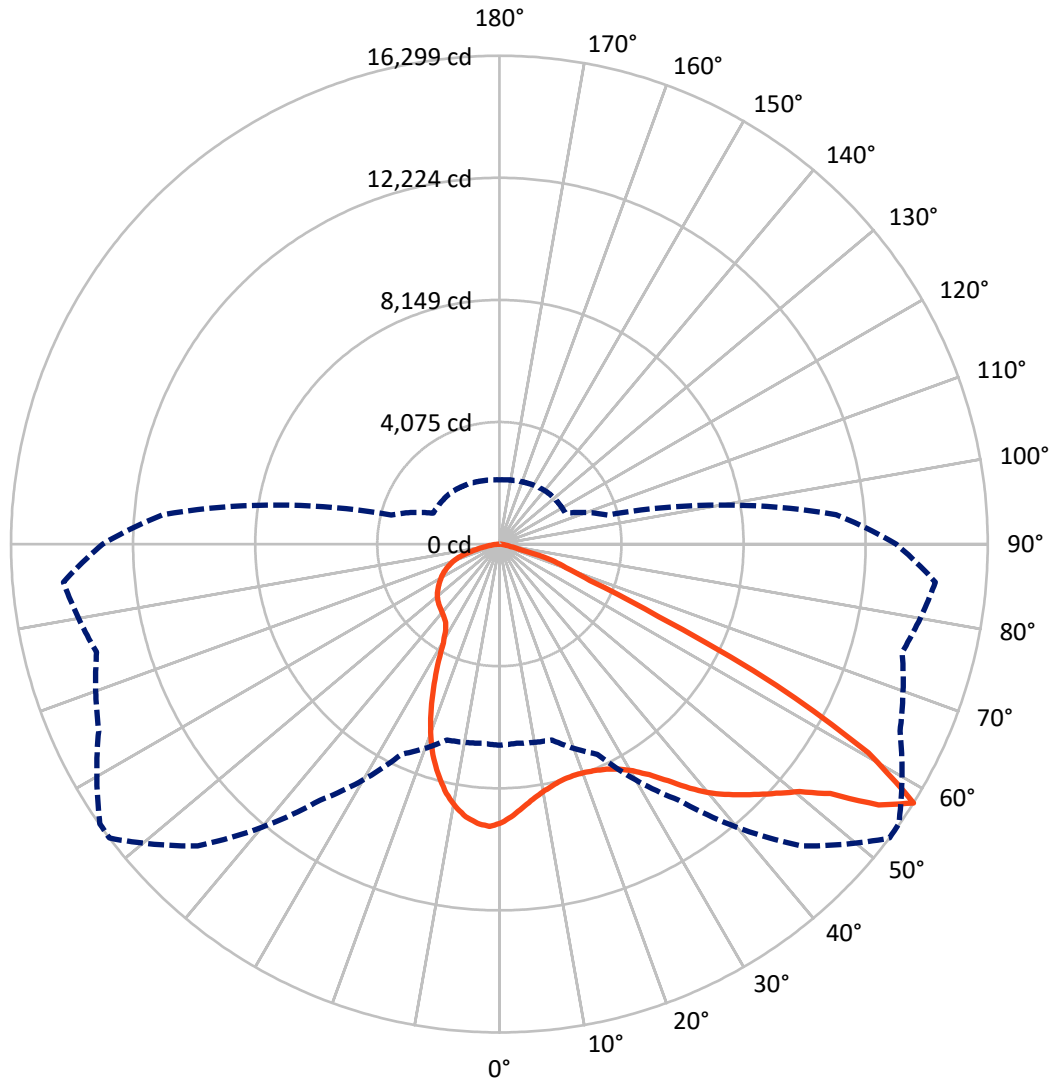
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 14.9 fc
 Type II - Short - N/A

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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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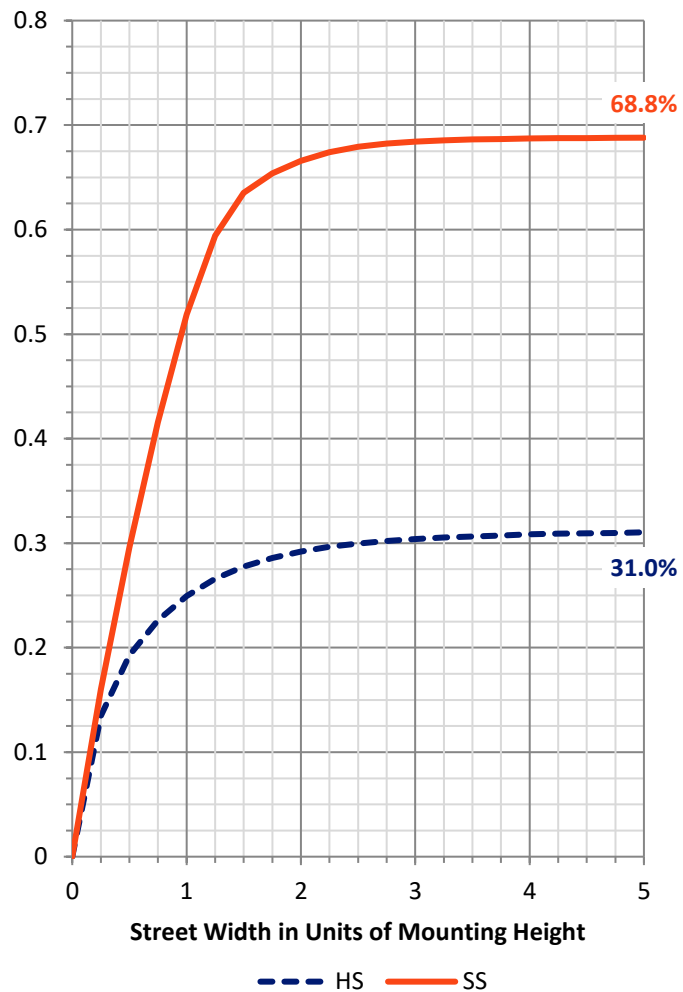
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 9103.5 | 0.0 | 9103.5 |
| | % Fixture | 31.3 | 0.0 | 31.3 |
| Street Side | Lumens | 20012.4 | 0.0 | 20012.4 |
| | % Fixture | 68.7 | 0.0 | 68.7 |
| Total | Lumens | 29115.9 | 0.0 | 29115.9 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 840.8 | 2.9 |
| 10°-20° | 2205.8 | 7.6 |
| 20°-30° | 3249.9 | 11.2 |
| 30°-40° | 4549.0 | 15.6 |
| 40°-50° | 5980.0 | 20.5 |
| 50°-60° | 7011.6 | 24.1 |
| 60°-70° | 4130.6 | 14.2 |
| 70°-80° | 1027.6 | 3.5 |
| 80°-90° | 120.6 | 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° | 29115.9 | 100.0 |
| 0°-180° | 29115.9 | 100.0 |

Coefficient of Utilization



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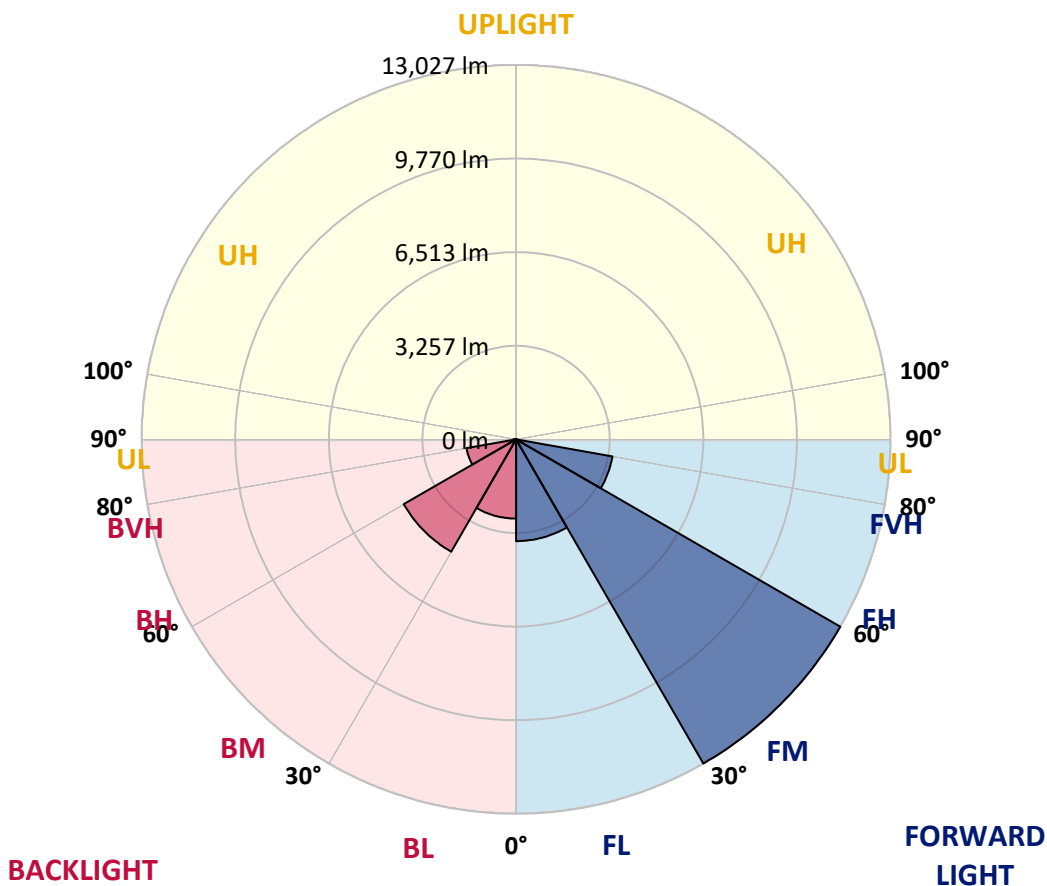
CATALOG NUMBER: GWS-SA5E-730-U-SL2-W-GRSWH

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|---------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 3539.9 | 12.2 | | | |
| FM (30°-60°) | 13026.7 | 44.7 | | | |
| FH (60°-80°) | 3405.4 | 11.7 | | | G2/5000 |
| FVH (80°-90°) | 40.4 | 0.1 | | | G1/100 |
| BL (0°-30°) | 2756.6 | 9.5 | B4/5000 | | |
| BM (30°-60°) | 4514.0 | 15.5 | B3/5000 | | |
| BH (60°-80°) | 1752.7 | 6.0 | B3/2500 | | G3/2500 |
| BVH (80°-90°) | 80.2 | 0.3 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B4-U0-G3

Type II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 53° | 55° | 65° | 75° | 85° |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0° | 9297.5 | 9297.5 | 9297.5 | 9297.5 | 9297.5 | 9297.5 | 9297.5 | 9297.5 | 9297.5 | 9297.5 | 9297.5 |
| 2.5° | 8763.3 | 8787.8 | 8792.7 | 8868.6 | 8873.5 | 8983.8 | 9057.3 | 9042.6 | 9118.6 | 9211.7 | 9285.2 |
| 5° | 8344.2 | 8346.7 | 8371.2 | 8461.8 | 8510.9 | 8655.4 | 8778.0 | 8778.0 | 8925.0 | 9116.2 | 9280.3 |
| 7.5° | 7998.7 | 7996.2 | 8018.3 | 8118.8 | 8199.6 | 8373.6 | 8540.3 | 8559.9 | 8765.7 | 9045.1 | 9312.2 |
| 10° | 7677.7 | 7694.8 | 7719.3 | 7841.9 | 7944.8 | 8160.4 | 8358.9 | 8390.8 | 8650.5 | 8996.1 | 9356.3 |
| 12.5° | 7471.8 | 7474.3 | 7511.0 | 7648.3 | 7780.6 | 8010.9 | 8219.2 | 8258.4 | 8557.4 | 8949.5 | 9388.2 |
| 15° | 7339.5 | 7341.9 | 7381.1 | 7533.1 | 7687.5 | 7920.3 | 8133.5 | 8177.6 | 8503.5 | 8942.2 | 9449.4 |
| 17.5° | 7280.7 | 7278.2 | 7315.0 | 7466.9 | 7636.0 | 7878.6 | 8106.5 | 8160.4 | 8528.0 | 8998.5 | 9557.3 |
| 20° | 7280.7 | 7283.1 | 7302.7 | 7440.0 | 7611.5 | 7868.8 | 8133.5 | 8199.6 | 8623.6 | 9126.0 | 9723.9 |
| 22.5° | 7383.6 | 7393.4 | 7403.2 | 7496.3 | 7631.1 | 7883.5 | 8204.5 | 8292.8 | 8829.4 | 9339.2 | 9942.0 |
| 25° | 7584.5 | 7587.0 | 7596.8 | 7672.8 | 7734.0 | 7925.2 | 8322.2 | 8454.5 | 9150.5 | 9650.4 | 10216.5 |
| 27.5° | 7854.1 | 7888.4 | 7898.2 | 7947.2 | 7947.2 | 8028.1 | 8506.0 | 8697.1 | 9584.2 | 10098.8 | 10566.9 |
| 30° | 8231.5 | 8243.7 | 8260.9 | 8314.8 | 8256.0 | 8221.7 | 8775.5 | 9020.6 | 10086.6 | 10640.4 | 10988.4 |
| 32.5° | 8562.3 | 8589.3 | 8682.4 | 8770.6 | 8665.2 | 8557.4 | 9172.5 | 9461.7 | 10569.3 | 11204.0 | 11436.8 |
| 35° | 8844.1 | 8910.3 | 9089.2 | 9285.2 | 9211.7 | 9103.9 | 9699.4 | 10000.8 | 10966.3 | 11608.4 | 11833.8 |
| 37.5° | 9184.8 | 9236.2 | 9481.3 | 9799.9 | 9866.0 | 9814.6 | 10341.4 | 10557.1 | 11231.0 | 11711.3 | 12049.5 |
| 40° | 9530.3 | 9608.7 | 9924.8 | 10365.9 | 10618.4 | 10655.1 | 10934.5 | 11079.1 | 11321.7 | 11510.4 | 12007.8 |
| 42.5° | 9883.2 | 10018.0 | 10451.7 | 10966.3 | 11414.8 | 11498.1 | 11434.4 | 11495.7 | 11292.3 | 11233.5 | 11814.2 |
| 45° | 10314.5 | 10473.8 | 10963.9 | 11620.6 | 12211.2 | 12341.1 | 11924.5 | 11868.1 | 11287.4 | 11128.1 | 11694.2 |
| 47.5° | 10824.2 | 10983.5 | 11451.6 | 12216.1 | 12970.9 | 13066.5 | 12426.9 | 12324.0 | 11458.9 | 11289.8 | 11855.9 |
| 50° | 11275.1 | 11385.4 | 11804.4 | 12659.7 | 13679.1 | 13735.5 | 12980.7 | 12855.7 | 11885.3 | 11738.3 | 12360.7 |
| 52.5° | 10816.9 | 10804.6 | 11245.7 | 12299.5 | 14046.7 | 14725.5 | 13833.5 | 13713.4 | 12708.7 | 12483.2 | 13142.5 |
| 55° | 9177.4 | 9037.7 | 9432.3 | 10468.9 | 13019.9 | 15605.3 | 15362.7 | 15122.5 | 13806.6 | 13233.1 | 13875.2 |
| 57.5° | 6709.7 | 6670.5 | 6766.0 | 7738.9 | 10429.7 | 14242.8 | 16298.8 | 16276.7 | 14754.9 | 13919.3 | 14605.4 |
| 60° | 5246.7 | 5187.9 | 4933.0 | 4960.0 | 7109.1 | 11125.6 | 14144.7 | 14794.1 | 15343.1 | 14331.0 | 15115.2 |
| 62.5° | 4658.5 | 4614.4 | 4482.1 | 4117.0 | 4234.6 | 7459.6 | 10368.4 | 10963.9 | 13407.1 | 12657.2 | 12983.2 |
| 65° | 3857.2 | 3845.0 | 3955.2 | 3940.5 | 3548.4 | 4119.4 | 5852.0 | 6452.4 | 8430.0 | 8535.4 | 8430.0 |
| 67.5° | 2803.5 | 2781.4 | 3060.8 | 3612.2 | 3416.1 | 3109.8 | 3261.7 | 3470.0 | 4322.8 | 3881.7 | 3494.5 |
| 70° | 1823.2 | 1791.4 | 1953.1 | 2609.9 | 3058.3 | 2710.3 | 2350.1 | 2315.8 | 2377.1 | 1477.7 | 1597.8 |
| 72.5° | 1222.8 | 1186.1 | 1183.6 | 1436.0 | 1847.7 | 1825.7 | 1820.8 | 1803.6 | 1610.0 | 1166.5 | 1293.9 |
| 75° | 681.3 | 651.9 | 644.5 | 620.0 | 661.7 | 673.9 | 718.0 | 742.5 | 803.8 | 884.7 | 980.2 |
| 77.5° | 115.2 | 112.7 | 142.1 | 181.3 | 250.0 | 321.0 | 397.0 | 419.0 | 517.1 | 612.6 | 673.9 |
| 80° | 63.7 | 66.2 | 85.8 | 105.4 | 139.7 | 191.1 | 245.1 | 259.8 | 318.6 | 370.0 | 419.0 |
| 82.5° | 34.3 | 34.3 | 44.1 | 56.4 | 76.0 | 100.5 | 132.3 | 144.6 | 183.8 | 215.7 | 250.0 |
| 85° | 12.3 | 12.3 | 17.2 | 22.1 | 31.9 | 41.7 | 51.5 | 58.8 | 80.9 | 110.3 | 125.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 2.5 | 4.9 | 9.8 | 9.8 | 12.3 | 22.1 | 31.9 |
| 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: P640615

CATALOG NUMBER: GWS-SA5E-730-U-SL2-W-GRSWH

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 9297.5 | 9297.5 | 9297.5 | 9297.5 | 9297.5 | 9297.5 | 9297.5 | 9297.5 | 9297.5 | 9297.5 | 9297.5 |
| 2.5° | 9346.5 | 9280.3 | 9371.0 | 9412.7 | 9427.4 | 9437.2 | 9373.5 | 9329.4 | 9314.6 | 9268.1 | 9241.1 |
| 5° | 9380.8 | 9336.7 | 9422.5 | 9422.5 | 9361.2 | 9297.5 | 9167.6 | 9076.9 | 9013.2 | 8937.3 | 8925.0 |
| 7.5° | 9439.6 | 9407.8 | 9454.3 | 9358.8 | 9204.4 | 9032.8 | 8807.4 | 8630.9 | 8488.8 | 8395.7 | 8398.1 |
| 10° | 9518.0 | 9478.8 | 9442.1 | 9228.9 | 8947.1 | 8630.9 | 8285.4 | 8028.1 | 7792.8 | 7685.0 | 7626.2 |
| 12.5° | 9569.5 | 9513.1 | 9358.8 | 9005.9 | 8591.7 | 8167.8 | 7680.1 | 7297.8 | 6957.2 | 6802.8 | 6790.6 |
| 15° | 9633.2 | 9530.3 | 9221.5 | 8716.7 | 8140.8 | 7562.5 | 6935.1 | 6403.4 | 5942.7 | 5702.5 | 5690.2 |
| 17.5° | 9716.5 | 9547.5 | 9057.3 | 8385.9 | 7665.4 | 6812.6 | 6023.5 | 5354.5 | 4864.4 | 4678.2 | 4710.0 |
| 20° | 9834.2 | 9567.1 | 8871.1 | 8018.3 | 7074.8 | 5959.8 | 4977.1 | 4362.0 | 4173.3 | 4161.1 | 4136.6 |
| 22.5° | 9966.5 | 9579.3 | 8665.2 | 7606.6 | 6359.3 | 5050.6 | 4112.1 | 3849.9 | 3847.4 | 3908.7 | 3923.4 |
| 25° | 10116.0 | 9589.1 | 8432.4 | 7126.3 | 5584.9 | 4143.9 | 3636.7 | 3558.2 | 3619.5 | 3734.7 | 3749.4 |
| 27.5° | 10307.1 | 9608.7 | 8150.6 | 6599.4 | 4761.5 | 3580.3 | 3374.4 | 3354.8 | 3428.4 | 3536.2 | 3531.3 |
| 30° | 10588.9 | 9679.8 | 7851.7 | 5994.1 | 3916.0 | 3313.2 | 3215.2 | 3217.6 | 3247.0 | 3298.5 | 3305.8 |
| 32.5° | 10875.7 | 9790.1 | 7560.0 | 5312.9 | 3430.8 | 3161.2 | 3117.1 | 3112.2 | 3112.2 | 3134.3 | 3139.2 |
| 35° | 11147.7 | 9915.0 | 7243.9 | 4602.2 | 3195.6 | 3073.0 | 3043.6 | 3028.9 | 3021.6 | 3016.7 | 3009.3 |
| 37.5° | 11299.6 | 9976.3 | 6935.1 | 3901.3 | 3070.6 | 3014.2 | 2984.8 | 2965.2 | 2938.2 | 2918.6 | 2913.7 |
| 40° | 11233.5 | 9905.2 | 6577.4 | 3376.9 | 2994.6 | 2957.8 | 2923.5 | 2896.6 | 2859.8 | 2842.7 | 2832.9 |
| 42.5° | 11012.9 | 9684.7 | 6187.7 | 3129.4 | 2933.3 | 2896.6 | 2854.9 | 2810.8 | 2786.3 | 2771.6 | 2769.2 |
| 45° | 10780.1 | 9417.6 | 5717.2 | 2984.8 | 2874.5 | 2830.4 | 2781.4 | 2732.4 | 2705.4 | 2698.1 | 2695.6 |
| 47.5° | 10772.7 | 9285.2 | 5217.3 | 2869.6 | 2803.5 | 2759.4 | 2698.1 | 2649.1 | 2619.7 | 2609.9 | 2600.1 |
| 50° | 11096.2 | 9420.0 | 4653.6 | 2769.2 | 2729.9 | 2683.4 | 2614.8 | 2560.9 | 2524.1 | 2511.8 | 2509.4 |
| 52.5° | 11767.7 | 9927.3 | 4148.8 | 2668.7 | 2631.9 | 2578.0 | 2521.6 | 2467.7 | 2423.6 | 2401.6 | 2399.1 |
| 55° | 12493.0 | 10571.8 | 3835.2 | 2565.8 | 2516.7 | 2470.2 | 2418.7 | 2359.9 | 2310.9 | 2276.6 | 2271.7 |
| 57.5° | 13242.9 | 11275.1 | 3739.6 | 2435.9 | 2399.1 | 2367.3 | 2306.0 | 2242.3 | 2185.9 | 2154.1 | 2146.7 |
| 60° | 13860.5 | 11880.4 | 3918.5 | 2298.6 | 2279.0 | 2237.4 | 2181.0 | 2119.8 | 2080.5 | 2056.0 | 2051.1 |
| 62.5° | 11603.5 | 9672.4 | 3163.7 | 2149.2 | 2149.2 | 2105.0 | 2041.3 | 1997.2 | 1970.3 | 1953.1 | 1948.2 |
| 65° | 7364.0 | 5989.2 | 2159.0 | 1999.7 | 1997.2 | 1938.4 | 1884.5 | 1855.1 | 1842.8 | 1815.9 | 1811.0 |
| 67.5° | 3207.8 | 2737.3 | 1845.3 | 1847.7 | 1837.9 | 1774.2 | 1720.3 | 1698.3 | 1673.7 | 1644.3 | 1641.9 |
| 70° | 1663.9 | 1695.8 | 1651.7 | 1678.6 | 1661.5 | 1585.5 | 1534.1 | 1499.8 | 1448.3 | 1418.9 | 1421.3 |
| 72.5° | 1342.9 | 1377.2 | 1426.2 | 1467.9 | 1431.1 | 1369.9 | 1289.0 | 1247.3 | 1181.2 | 1149.3 | 1151.8 |
| 75° | 1024.3 | 1061.1 | 1107.7 | 1151.8 | 1122.4 | 1046.4 | 994.9 | 953.3 | 877.3 | 840.5 | 847.9 |
| 77.5° | 705.8 | 725.4 | 781.7 | 779.3 | 769.5 | 747.4 | 671.5 | 622.4 | 544.0 | 499.9 | 504.8 |
| 80° | 438.7 | 450.9 | 477.9 | 490.1 | 485.2 | 455.8 | 394.5 | 357.8 | 311.2 | 284.3 | 286.7 |
| 82.5° | 264.7 | 272.0 | 296.5 | 299.0 | 296.5 | 274.5 | 227.9 | 200.9 | 171.5 | 156.8 | 156.8 |
| 85° | 134.8 | 139.7 | 154.4 | 154.4 | 139.7 | 117.6 | 105.4 | 93.1 | 76.0 | 68.6 | 68.6 |
| 87.5° | 36.8 | 36.8 | 46.6 | 39.2 | 31.9 | 29.4 | 14.7 | 12.3 | 4.9 | 2.5 | 2.5 |
| 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: SP1-1908-441-2-R4

Test Date: 10/03/2019

Luminaire Tested: SA1C-730-U-5WQ

Data in this report applies to families of products SA1C-730-U-5WQ .

Test Information

Test Method: LM-79-2008
 Report Number: SP1-1908-441-2-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-730-U-5WQ**
 Description: MCGRAW EDISON ROADWAY AND AREA LUMINAIRE

THIS IS A REVISION OF SP1-1908-441-2-R3. TO UPDATE THE CATALOG INFORMATION.TESTED IN SITU. (1) 70 CRI, 3000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

Spectral Parameters

| | | | | | |
|---------------------------|--------|-----------|------|------|-------|
| CCT (K): | 2993 | CRI (Ra): | 71.8 | R9: | -38.3 |
| CIE u': | 0.2508 | R1: | 67.5 | R10: | 62.5 |
| CIE v': | 0.5215 | R2: | 82.9 | R11: | 63.7 |
| Duv: | 0.0000 | R3: | 94.7 | R12: | 57.8 |
| CIE x: | 0.4374 | R4: | 67.7 | R13: | 70.4 |
| CIE y: | 0.4043 | R5: | 67.9 | R14: | 97.3 |
| CIE z: | 0.1583 | R6: | 77.6 | | |
| Peak Wavelength (nm): | 593 | R7: | 76.0 | | |
| Dominant Wavelength (nm): | 582 | R8: | 40.5 | | |
| Purity: | 53 | | | | |
| Rf: | 75.7 | | | | |
| Rg: | 93.9 | | | | |



Test Conditions

Stabilization Time: 53M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.0./44%
 Sphere Temperature (°C): 25.7

REPORT NUMBER: SP1-1908-441-2-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 |

REPORT NUMBER: SP1-1908-441-2-R4

CIE 1931 Chromaticity Diagram



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



Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-1908-441-2-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 | 2397 | NR | 490 | 24908 | NR | 620 | 118784 | NR | 750 | 5037 | NR | 880 | 2677 | NR |
| 365 | 2084 | NR | 495 | 30998 | NR | 625 | 108951 | NR | 755 | 4413 | NR | 885 | 2940 | NR |
| 370 | 2143 | NR | 500 | 37103 | NR | 630 | 99573 | NR | 760 | 4189 | NR | 890 | 3116 | NR |
| 375 | 2413 | NR | 505 | 42987 | NR | 635 | 90444 | NR | 765 | 3677 | NR | 895 | 3345 | NR |
| 380 | 2172 | NR | 510 | 48702 | NR | 640 | 80749 | NR | 770 | 3366 | NR | 900 | 2312 | NR |
| 385 | 1997 | NR | 515 | 53741 | NR | 645 | 71664 | NR | 775 | 3211 | NR | 905 | 2829 | NR |
| 390 | 1830 | NR | 520 | 57283 | NR | 650 | 63936 | NR | 780 | 2682 | NR | 910 | 2783 | NR |
| 395 | 1861 | NR | 525 | 61876 | NR | 655 | 56611 | NR | 785 | 2804 | NR | 915 | 2662 | NR |
| 400 | 1717 | NR | 530 | 65398 | NR | 660 | 49763 | NR | 790 | 2581 | NR | 920 | 3047 | NR |
| 405 | 1761 | NR | 535 | 69597 | NR | 665 | 42891 | NR | 795 | 2711 | NR | 925 | 2256 | NR |
| 410 | 2680 | NR | 540 | 74214 | NR | 670 | 36939 | NR | 800 | 2609 | NR | 930 | 2976 | NR |
| 415 | 4374 | NR | 545 | 79911 | NR | 675 | 31946 | NR | 805 | 2581 | NR | 935 | 3503 | NR |
| 420 | 8071 | NR | 550 | 86153 | NR | 680 | 27385 | NR | 810 | 2404 | NR | 940 | 4226 | NR |
| 425 | 15169 | NR | 555 | 93952 | NR | 685 | 23504 | NR | 815 | 2556 | NR | 945 | 2930 | NR |
| 430 | 26038 | NR | 560 | 102904 | NR | 690 | 20210 | NR | 820 | 2742 | NR | 950 | 2115 | NR |
| 435 | 41316 | NR | 565 | 112009 | NR | 695 | 17459 | NR | 825 | 2014 | NR | 955 | 2634 | NR |
| 440 | 59674 | NR | 570 | 121662 | NR | 700 | 15207 | NR | 830 | 2488 | NR | 960 | 4200 | NR |
| 445 | 72751 | NR | 575 | 130476 | NR | 705 | 13322 | NR | 835 | 2625 | NR | 965 | 1982 | NR |
| 450 | 65091 | NR | 580 | 137926 | NR | 710 | 11676 | NR | 840 | 2754 | NR | 970 | 3613 | NR |
| 455 | 44894 | NR | 585 | 143406 | NR | 715 | 10626 | NR | 845 | 2708 | NR | 975 | 4034 | NR |
| 460 | 32712 | NR | 590 | 147039 | NR | 720 | 9416 | NR | 850 | 2608 | NR | 980 | 3922 | NR |
| 465 | 25296 | NR | 595 | 147365 | NR | 725 | 8333 | NR | 855 | 2605 | NR | 985 | 1909 | NR |
| 470 | 19318 | NR | 600 | 145800 | NR | 730 | 7134 | NR | 860 | 1765 | NR | 990 | 3617 | NR |
| 475 | 17265 | NR | 605 | 141363 | NR | 735 | 6437 | NR | 865 | 2581 | NR | 995 | 4767 | NR |
| 480 | 18260 | NR | 610 | 134199 | NR | 740 | 5834 | NR | 870 | 3016 | NR | 1000 | 2528 | NR |
| 485 | 20845 | NR | 615 | 127683 | NR | 745 | 5500 | NR | 875 | 3952 | NR | | | |

REPORT NUMBER: SP1-1908-441-2-R4

Scotopic Flux vs. Wavelength



Scotopic Lumens: 8494.8

S/P: 1.23

| 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 | 2397 | NR | 490 | 24908 | NR | 620 | 118784 | NR | 750 | 5037 | NR | 880 | 2677 | NR |
| 365 | 2084 | NR | 495 | 30998 | NR | 625 | 108951 | NR | 755 | 4413 | NR | 885 | 2940 | NR |
| 370 | 2143 | NR | 500 | 37103 | NR | 630 | 99573 | NR | 760 | 4189 | NR | 890 | 3116 | NR |
| 375 | 2413 | NR | 505 | 42987 | NR | 635 | 90444 | NR | 765 | 3677 | NR | 895 | 3345 | NR |
| 380 | 2172 | NR | 510 | 48702 | NR | 640 | 80749 | NR | 770 | 3366 | NR | 900 | 2312 | NR |
| 385 | 1997 | NR | 515 | 53741 | NR | 645 | 71664 | NR | 775 | 3211 | NR | 905 | 2829 | NR |
| 390 | 1830 | NR | 520 | 57283 | NR | 650 | 63936 | NR | 780 | 2682 | NR | 910 | 2783 | NR |
| 395 | 1861 | NR | 525 | 61876 | NR | 655 | 56611 | NR | 785 | 2804 | NR | 915 | 2662 | NR |
| 400 | 1717 | NR | 530 | 65398 | NR | 660 | 49763 | NR | 790 | 2581 | NR | 920 | 3047 | NR |
| 405 | 1761 | NR | 535 | 69597 | NR | 665 | 42891 | NR | 795 | 2711 | NR | 925 | 2256 | NR |
| 410 | 2680 | NR | 540 | 74214 | NR | 670 | 36939 | NR | 800 | 2609 | NR | 930 | 2976 | NR |
| 415 | 4374 | NR | 545 | 79911 | NR | 675 | 31946 | NR | 805 | 2581 | NR | 935 | 3503 | NR |
| 420 | 8071 | NR | 550 | 86153 | NR | 680 | 27385 | NR | 810 | 2404 | NR | 940 | 4226 | NR |
| 425 | 15169 | NR | 555 | 93952 | NR | 685 | 23504 | NR | 815 | 2556 | NR | 945 | 2930 | NR |
| 430 | 26038 | NR | 560 | 102904 | NR | 690 | 20210 | NR | 820 | 2742 | NR | 950 | 2115 | NR |
| 435 | 41316 | NR | 565 | 112009 | NR | 695 | 17459 | NR | 825 | 2014 | NR | 955 | 2634 | NR |
| 440 | 59674 | NR | 570 | 121662 | NR | 700 | 15207 | NR | 830 | 2488 | NR | 960 | 4200 | NR |
| 445 | 72751 | NR | 575 | 130476 | NR | 705 | 13322 | NR | 835 | 2625 | NR | 965 | 1982 | NR |
| 450 | 65091 | NR | 580 | 137926 | NR | 710 | 11676 | NR | 840 | 2754 | NR | 970 | 3613 | NR |
| 455 | 44894 | NR | 585 | 143406 | NR | 715 | 10626 | NR | 845 | 2708 | NR | 975 | 4034 | NR |
| 460 | 32712 | NR | 590 | 147039 | NR | 720 | 9416 | NR | 850 | 2608 | NR | 980 | 3922 | NR |
| 465 | 25296 | NR | 595 | 147365 | NR | 725 | 8333 | NR | 855 | 2605 | NR | 985 | 1909 | NR |
| 470 | 19318 | NR | 600 | 145800 | NR | 730 | 7134 | NR | 860 | 1765 | NR | 990 | 3617 | NR |
| 475 | 17265 | NR | 605 | 141363 | NR | 735 | 6437 | NR | 865 | 2581 | NR | 995 | 4767 | NR |
| 480 | 18260 | NR | 610 | 134199 | NR | 740 | 5834 | NR | 870 | 3016 | NR | 1000 | 2528 | NR |
| 485 | 20845 | NR | 615 | 127683 | NR | 745 | 5500 | NR | 875 | 3952 | NR | | | |

REPORT NUMBER: SP1-1908-441-2-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 3101.5 M/P: 0.45

| 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 | 2397 | NR | 490 | 24908 | NR | 620 | 118784 | NR | 750 | 5037 | NR | 880 | 2677 | NR |
| 365 | 2084 | NR | 495 | 30998 | NR | 625 | 108951 | NR | 755 | 4413 | NR | 885 | 2940 | NR |
| 370 | 2143 | NR | 500 | 37103 | NR | 630 | 99573 | NR | 760 | 4189 | NR | 890 | 3116 | NR |
| 375 | 2413 | NR | 505 | 42987 | NR | 635 | 90444 | NR | 765 | 3677 | NR | 895 | 3345 | NR |
| 380 | 2172 | NR | 510 | 48702 | NR | 640 | 80749 | NR | 770 | 3366 | NR | 900 | 2312 | NR |
| 385 | 1997 | NR | 515 | 53741 | NR | 645 | 71664 | NR | 775 | 3211 | NR | 905 | 2829 | NR |
| 390 | 1830 | NR | 520 | 57283 | NR | 650 | 63936 | NR | 780 | 2682 | NR | 910 | 2783 | NR |
| 395 | 1861 | NR | 525 | 61876 | NR | 655 | 56611 | NR | 785 | 2804 | NR | 915 | 2662 | NR |
| 400 | 1717 | NR | 530 | 65398 | NR | 660 | 49763 | NR | 790 | 2581 | NR | 920 | 3047 | NR |
| 405 | 1761 | NR | 535 | 69597 | NR | 665 | 42891 | NR | 795 | 2711 | NR | 925 | 2256 | NR |
| 410 | 2680 | NR | 540 | 74214 | NR | 670 | 36939 | NR | 800 | 2609 | NR | 930 | 2976 | NR |
| 415 | 4374 | NR | 545 | 79911 | NR | 675 | 31946 | NR | 805 | 2581 | NR | 935 | 3503 | NR |
| 420 | 8071 | NR | 550 | 86153 | NR | 680 | 27385 | NR | 810 | 2404 | NR | 940 | 4226 | NR |
| 425 | 15169 | NR | 555 | 93952 | NR | 685 | 23504 | NR | 815 | 2556 | NR | 945 | 2930 | NR |
| 430 | 26038 | NR | 560 | 102904 | NR | 690 | 20210 | NR | 820 | 2742 | NR | 950 | 2115 | NR |
| 435 | 41316 | NR | 565 | 112009 | NR | 695 | 17459 | NR | 825 | 2014 | NR | 955 | 2634 | NR |
| 440 | 59674 | NR | 570 | 121662 | NR | 700 | 15207 | NR | 830 | 2488 | NR | 960 | 4200 | NR |
| 445 | 72751 | NR | 575 | 130476 | NR | 705 | 13322 | NR | 835 | 2625 | NR | 965 | 1982 | NR |
| 450 | 65091 | NR | 580 | 137926 | NR | 710 | 11676 | NR | 840 | 2754 | NR | 970 | 3613 | NR |
| 455 | 44894 | NR | 585 | 143406 | NR | 715 | 10626 | NR | 845 | 2708 | NR | 975 | 4034 | NR |
| 460 | 32712 | NR | 590 | 147039 | NR | 720 | 9416 | NR | 850 | 2608 | NR | 980 | 3922 | NR |
| 465 | 25296 | NR | 595 | 147365 | NR | 725 | 8333 | NR | 855 | 2605 | NR | 985 | 1909 | NR |
| 470 | 19318 | NR | 600 | 145800 | NR | 730 | 7134 | NR | 860 | 1765 | NR | 990 | 3617 | NR |
| 475 | 17265 | NR | 605 | 141363 | NR | 735 | 6437 | NR | 865 | 2581 | NR | 995 | 4767 | NR |
| 480 | 18260 | NR | 610 | 134199 | NR | 740 | 5834 | NR | 870 | 3016 | NR | 1000 | 2528 | NR |
| 485 | 20845 | NR | 615 | 127683 | NR | 745 | 5500 | NR | 875 | 3952 | NR | | | |

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Summary

$R_f = 75.7$
 $R_g = 93.9$
 CIE $R_a = 71.8$
 $R_9 = -38.3$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 67 | CES51 = 87 | CES76 = 63 |
| CES02 = 63 | CES27 = 88 | CES52 = 86 | CES77 = 80 |
| CES03 = 31 | CES28 = 87 | CES53 = 78 | CES78 = 67 |
| CES04 = 71 | CES29 = 66 | CES54 = 84 | CES79 = 87 |
| CES05 = 49 | CES30 = 73 | CES55 = 84 | CES80 = 86 |
| CES06 = 51 | CES31 = 70 | CES56 = 75 | CES81 = 71 |
| CES07 = 41 | CES32 = 65 | CES57 = 74 | CES82 = 94 |
| CES08 = 40 | CES33 = 73 | CES58 = 76 | CES83 = 90 |
| CES09 = 29 | CES34 = 79 | CES59 = 85 | CES84 = 89 |
| CES10 = 76 | CES35 = 89 | CES60 = 93 | CES85 = 77 |
| CES11 = 59 | CES36 = 97 | CES61 = 84 | CES86 = 61 |
| CES12 = 65 | CES37 = 87 | CES62 = 91 | CES87 = 78 |
| CES13 = 43 | CES38 = 81 | CES63 = 77 | CES88 = 77 |
| CES14 = 74 | CES39 = 95 | CES64 = 72 | CES89 = 67 |
| CES15 = 71 | CES40 = 92 | CES65 = 68 | CES90 = 76 |
| CES16 = 47 | CES41 = 88 | CES66 = 69 | CES91 = 89 |
| CES17 = 50 | CES42 = 89 | CES67 = 67 | CES92 = 58 |
| CES18 = 56 | CES43 = 79 | CES68 = 72 | CES93 = 74 |
| CES19 = 73 | CES44 = 99 | CES69 = 81 | CES94 = 49 |
| CES20 = 66 | CES45 = 85 | CES70 = 66 | CES95 = 68 |
| CES21 = 87 | CES46 = 80 | CES71 = 67 | CES96 = 76 |
| CES22 = 79 | CES47 = 82 | CES72 = 88 | CES97 = 82 |
| CES23 = 92 | CES48 = 69 | CES73 = 59 | CES98 = 75 |
| CES24 = 91 | CES49 = 80 | CES74 = 95 | CES99 = 62 |
| CES25 = 73 | CES50 = 87 | CES75 = 69 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)