

Scaled data based on original data using  
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions  
(formerly Eaton)

Brand: McGRAW-EDISON

Report Number: P324294

Luminaire Tested: **GLEON-SA0C-827-U-SLL-HSS**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P324294  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-27)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: McGRAW-EDISON  
Catalog Number: GLEON-SA0C-827-U-SLL-HSS  
Description: GALLEON AREA AND ROADWAY LUMINAIRE  
(10) 80 CRI, 2700K, 1050mA LIGHTSQUARES WITH 16 LEDS EACH AND SPILL LIGHT  
ELIMINATOR LEFT OPTICS WITH HOUSE SIDE SHIELD  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 38154 lumens  
Efficiency: N/A  
Efficacy: 68.4 lumens/watt  
Luminous Opening: Rectangular (W 2.5' x L: 1' x H: 0')  
IES Classification: Type III - Medium  
BUG Rating: B3 - U0 - G5

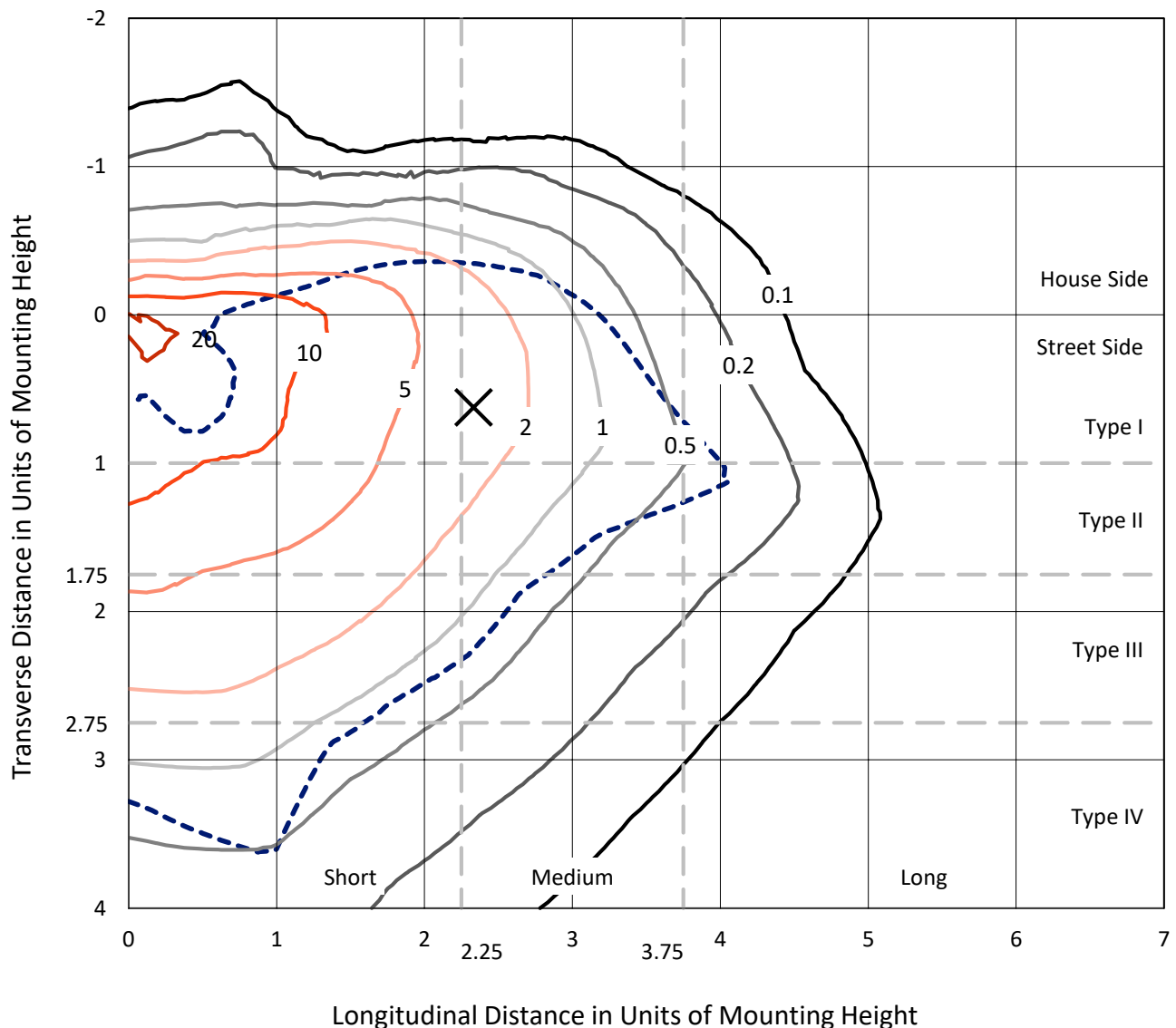
Input Watts (W): 558  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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## Iso-Footcandle Lines of Horizontal Illumination

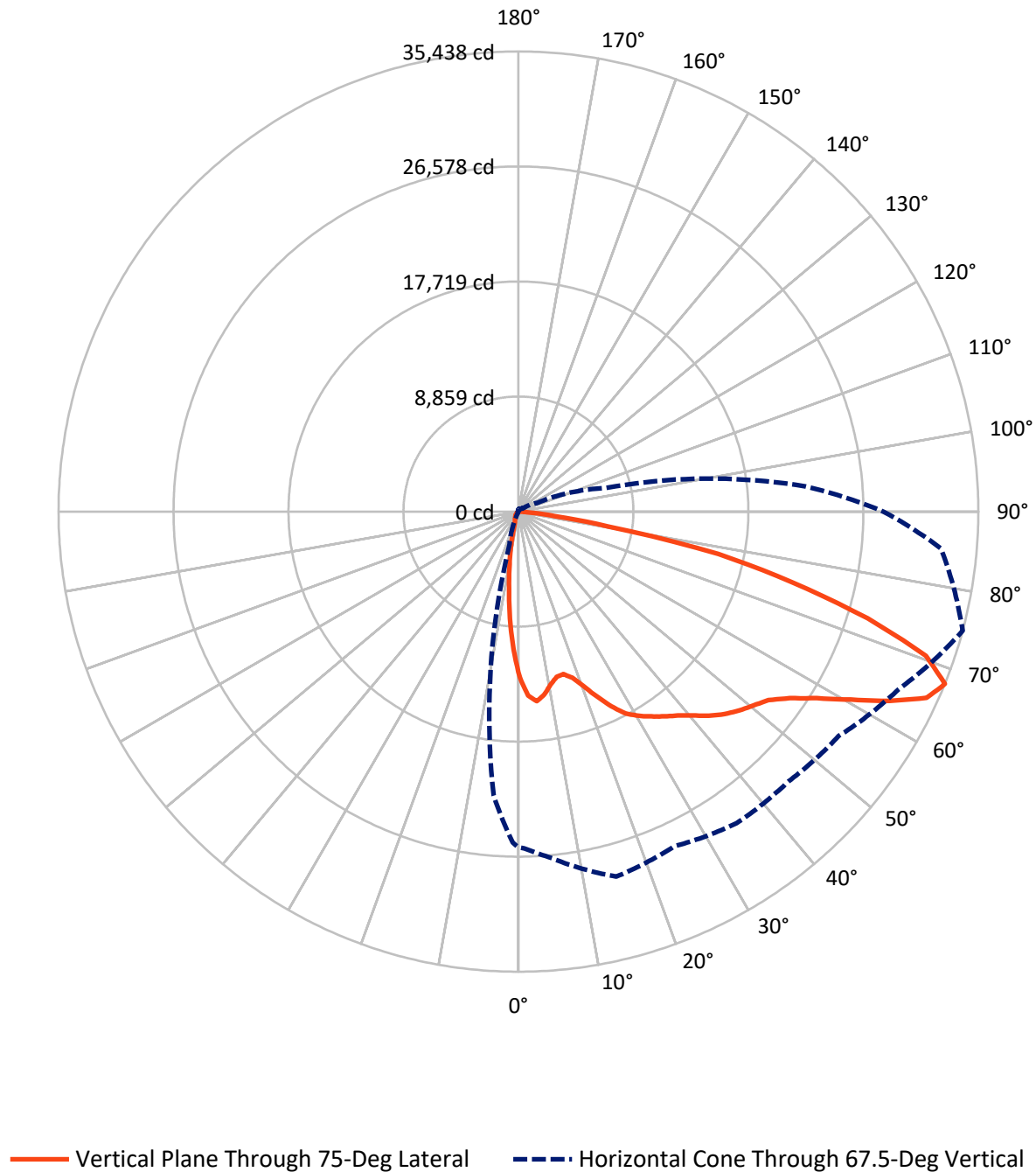
✕ Max cd  
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 26.5 fc  
 Type III - Medium - N/A

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## Luminous Intensity Polar Plot



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**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 5725.4   | 0.0    | 5725.4  |
|                    | % Fixture | 15.0     | 0.0    | 15.0    |
| <b>Street Side</b> | Lumens    | 32428.6  | 0.0    | 32428.6 |
|                    | % Fixture | 85.0     | 0.0    | 85.0    |
| <b>Total</b>       | Lumens    | 38154.0  | 0.0    | 38154.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 970.9   | 2.5       |
| 10°-20°   | 1911.8  | 5.0       |
| 20°-30°   | 2704.6  | 7.1       |
| 30°-40°   | 3976.6  | 10.4      |
| 40°-50°   | 5715.7  | 15.0      |
| 50°-60°   | 8046.2  | 21.1      |
| 60°-70°   | 9397.2  | 24.6      |
| 70°-80°   | 4794.1  | 12.6      |
| 80°-90°   | 636.9   | 1.7       |
| 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°    | 38154.0 | 100.0     |
| 0°-180°   | 38154.0 | 100.0     |

**Coefficient of Utilization**



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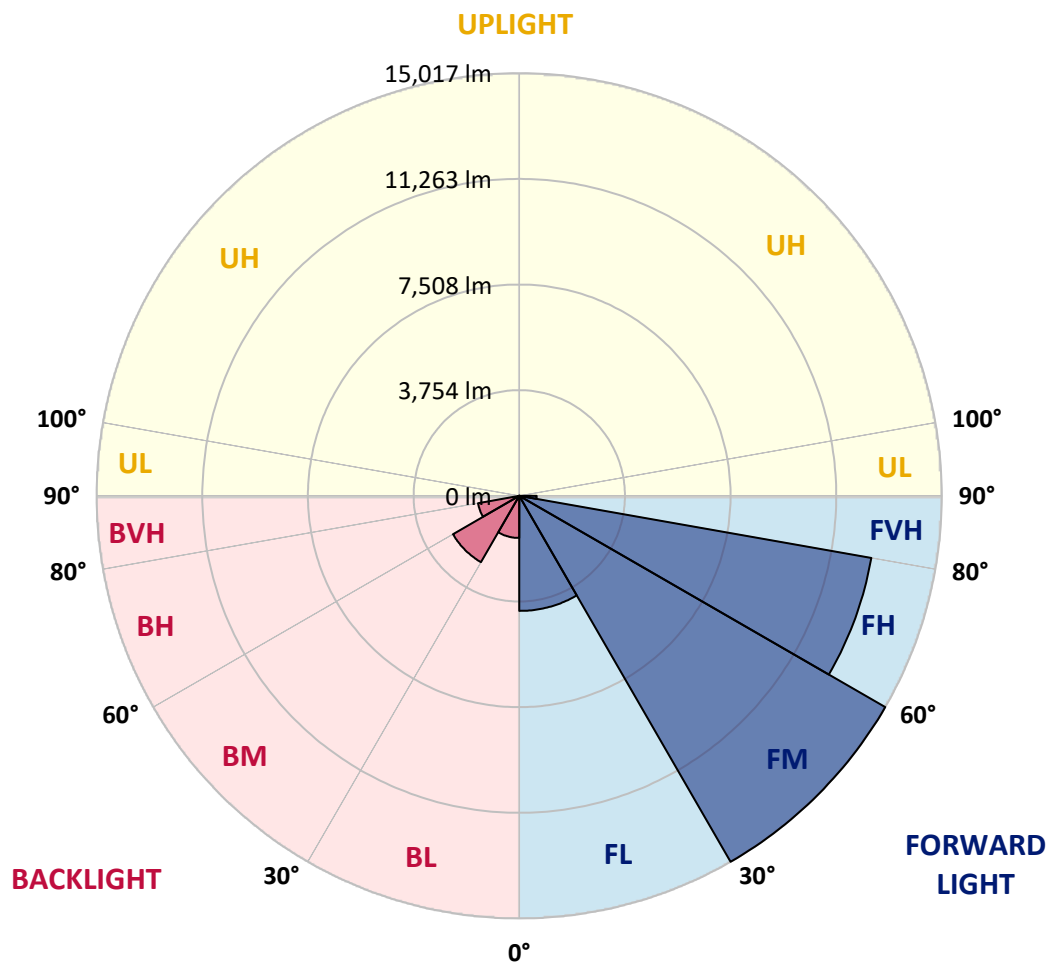
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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|---------|-----------|-------------------------|------|---------|
|      |             |         |           | B                       | U    | G       |
| FL   | (0°-30°)    | 4090.1  | 10.7      |                         |      |         |
| FM   | (30°-60°)   | 15016.7 | 39.4      |                         |      |         |
| FH   | (60°-80°)   | 12704.2 | 33.3      |                         |      | G5      |
| FVH  | (80°-90°)   | 617.6   | 1.6       |                         |      | G4/750  |
| BL   | (0°-30°)    | 1497.3  | 3.9       | B3/2500                 |      |         |
| BM   | (30°-60°)   | 2721.7  | 7.1       | B3/5000                 |      |         |
| BH   | (60°-80°)   | 1487.1  | 3.9       | B3/2500                 |      | G3/2500 |
| BVH  | (80°-90°)   | 19.3    | 0.1       |                         |      | G1/100  |
| UL   | (90°-100°)  | 0.0     | 0.0       |                         | U0/0 |         |
| UH   | (100°-180°) | 0.0     | 0.0       |                         | U0/0 |         |

**BUG Rating: B3-U0-G5**

Type III Medium





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 1°      | 5°      | 15°     | 25°     | 35°     | 45°     | 55°     | 65°     | 75°     | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 12800.0 | 12800.0 | 12800.0 | 12800.0 | 12800.0 | 12800.0 | 12800.0 | 12800.0 | 12800.0 | 12800.0 | 12800.0 |
| 2.5°  | 13875.4 | 13897.1 | 14009.2 | 14269.4 | 14553.2 | 14574.9 | 14766.5 | 14569.5 | 14502.6 | 14184.5 | 13855.5 |
| 5°    | 13980.2 | 14063.4 | 14448.4 | 15212.9 | 15876.2 | 16089.5 | 16241.3 | 15854.5 | 15447.9 | 14670.7 | 13841.1 |
| 7.5°  | 13136.2 | 13275.4 | 13880.8 | 15315.9 | 16501.6 | 17025.7 | 17125.1 | 16519.6 | 15523.8 | 14244.1 | 12997.0 |
| 10°   | 12055.4 | 12214.4 | 12944.6 | 14708.6 | 16337.1 | 17235.4 | 17372.7 | 16579.3 | 15147.8 | 13553.7 | 12084.3 |
| 12.5° | 11180.6 | 11366.7 | 12113.2 | 14025.4 | 15771.4 | 16765.5 | 17036.6 | 16378.7 | 14822.5 | 13063.9 | 11460.7 |
| 15°   | 10777.5 | 10990.8 | 11775.2 | 13584.4 | 15144.2 | 15926.8 | 16150.9 | 15867.2 | 14641.8 | 12986.2 | 11316.1 |
| 17.5° | 11008.9 | 11240.2 | 12049.9 | 13622.4 | 14555.0 | 14889.4 | 15070.1 | 15185.8 | 14641.8 | 13454.3 | 11739.1 |
| 20°   | 11957.8 | 12207.2 | 13063.9 | 14007.4 | 14067.0 | 13942.3 | 14135.7 | 14542.3 | 14811.7 | 14343.5 | 12754.8 |
| 22.5° | 13269.9 | 13562.7 | 14529.7 | 14667.1 | 13828.4 | 13356.7 | 13382.0 | 14020.0 | 15120.7 | 15471.4 | 14164.6 |
| 25°   | 14869.5 | 15227.4 | 16210.6 | 15650.3 | 13927.8 | 13007.9 | 12998.8 | 13589.8 | 15422.6 | 16601.0 | 15735.2 |
| 27.5° | 16458.2 | 16852.2 | 17716.1 | 16850.4 | 14338.1 | 12944.6 | 12926.5 | 13459.7 | 15717.2 | 17605.9 | 17450.5 |
| 30°   | 17790.2 | 18173.4 | 18918.1 | 17719.8 | 14780.9 | 13092.8 | 13006.1 | 13598.9 | 15892.5 | 18258.4 | 18701.2 |
| 32.5° | 18874.7 | 19181.9 | 19783.8 | 18318.0 | 15254.5 | 13380.2 | 13192.2 | 13971.2 | 16190.7 | 18809.6 | 19850.7 |
| 35°   | 20067.6 | 20391.1 | 20631.5 | 18887.3 | 15785.8 | 13794.1 | 13524.8 | 14562.2 | 16649.8 | 19369.9 | 21110.4 |
| 37.5° | 21428.5 | 21750.3 | 21721.3 | 19407.9 | 16460.0 | 14479.1 | 14307.4 | 15498.5 | 17363.7 | 19924.8 | 22516.6 |
| 40°   | 22760.6 | 23089.5 | 22854.6 | 19977.2 | 17251.6 | 15608.7 | 15482.2 | 16904.6 | 18319.8 | 20635.1 | 24165.0 |
| 42.5° | 24007.7 | 24363.8 | 23861.3 | 20515.8 | 18195.1 | 17032.9 | 17249.8 | 18715.6 | 19516.3 | 21509.9 | 25585.6 |
| 45°   | 25012.6 | 25375.9 | 24705.4 | 21040.0 | 19189.2 | 18760.8 | 19413.3 | 20721.9 | 20955.0 | 22249.1 | 26545.3 |
| 47.5° | 25742.8 | 26086.2 | 25291.0 | 21564.1 | 20461.6 | 20873.7 | 22010.5 | 22825.7 | 22254.5 | 22890.7 | 27226.7 |
| 50°   | 26209.1 | 26476.6 | 25462.7 | 22220.2 | 22131.6 | 23339.0 | 24716.2 | 25113.8 | 23478.1 | 23469.1 | 28054.5 |
| 52.5° | 26505.5 | 26626.6 | 25589.2 | 22905.2 | 23874.0 | 26023.0 | 27365.9 | 27490.6 | 24737.9 | 24105.3 | 29169.6 |
| 55°   | 27526.7 | 27624.3 | 26485.7 | 23734.8 | 25314.5 | 28374.4 | 29762.5 | 29646.8 | 26163.9 | 25350.6 | 30485.4 |
| 57.5° | 29269.1 | 29372.1 | 28338.2 | 24927.7 | 26480.2 | 29827.5 | 31499.4 | 31707.2 | 27835.8 | 27100.2 | 31895.2 |
| 60°   | 30143.8 | 30335.4 | 29966.7 | 26438.7 | 27609.9 | 30756.5 | 32683.2 | 33346.5 | 29925.1 | 29406.4 | 33261.6 |
| 62.5° | 29350.4 | 29628.7 | 30163.7 | 28114.1 | 28732.3 | 31268.0 | 33051.9 | 33934.0 | 32065.1 | 32094.0 | 34103.9 |
| 65°   | 27767.1 | 27989.4 | 28896.7 | 29032.3 | 29382.9 | 31204.8 | 32141.0 | 33113.4 | 33375.5 | 34562.9 | 34058.7 |
| 67.5° | 25854.9 | 25938.0 | 26708.0 | 29104.6 | 28439.5 | 29303.4 | 29404.6 | 30124.0 | 32339.8 | 35437.7 | 32690.5 |
| 70°   | 23102.2 | 23147.4 | 23819.7 | 26684.5 | 24439.7 | 24629.5 | 24479.4 | 24625.8 | 27803.3 | 33306.8 | 29236.5 |
| 72.5° | 18592.7 | 18706.6 | 19662.7 | 22160.5 | 17804.7 | 17257.1 | 18435.5 | 18370.4 | 21412.3 | 28139.4 | 21714.1 |
| 75°   | 13689.3 | 13886.3 | 15330.4 | 17849.9 | 12496.4 | 11303.5 | 12163.8 | 12393.3 | 15221.9 | 21766.5 | 13579.0 |
| 77.5° | 9584.6  | 9731.0  | 11130.0 | 13121.7 | 9044.2  | 8082.7  | 7771.8  | 8044.7  | 10047.3 | 15746.1 | 6841.0  |
| 80°   | 5521.6  | 5575.8  | 6468.7  | 7576.6  | 6094.6  | 6973.0  | 6316.9  | 6504.8  | 6020.5  | 7005.5  | 2942.4  |
| 82.5° | 3613.0  | 3622.0  | 3970.9  | 4509.5  | 3795.5  | 4410.1  | 3264.2  | 4173.3  | 3703.4  | 2814.1  | 957.9   |
| 85°   | 1952.0  | 1962.8  | 2302.6  | 3200.9  | 2149.0  | 1214.6  | 713.9   | 1465.8  | 2290.0  | 645.2   | 262.1   |
| 87.5° | 215.1   | 197.0   | 694.0   | 1164.0  | 596.4   | 110.3   | 38.0    | 164.5   | 366.9   | 41.6    | 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     |

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**CANDELA DISTRIBUTION (continued):**

|       | 90°     | 95°     | 105°    | 115°    | 125°    | 135°    | 145°    | 155°    | 165°    | 175°    | 180°    |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 12800.0 | 12800.0 | 12800.0 | 12800.0 | 12800.0 | 12800.0 | 12800.0 | 12800.0 | 12800.0 | 12800.0 | 12800.0 |
| 2.5°  | 13687.4 | 13537.4 | 13163.3 | 12767.5 | 12449.4 | 12151.2 | 11851.1 | 11484.2 | 11200.5 | 11142.6 | 11048.6 |
| 5°    | 13394.6 | 12919.3 | 12134.9 | 11346.9 | 10712.5 | 9911.8  | 9403.9  | 9008.1  | 8621.3  | 8597.8  | 8520.1  |
| 7.5°  | 12371.7 | 11746.3 | 10642.0 | 9552.1  | 8659.3  | 7896.5  | 7126.6  | 6611.5  | 6206.6  | 6063.8  | 5978.9  |
| 10°   | 11388.4 | 10685.4 | 9306.3  | 8062.8  | 7265.8  | 6591.6  | 6049.4  | 5510.8  | 5022.8  | 4686.6  | 4534.8  |
| 12.5° | 10701.6 | 9924.4  | 8404.4  | 7332.6  | 6761.5  | 6121.7  | 5460.2  | 4787.8  | 4225.7  | 3820.8  | 3573.2  |
| 15°   | 10435.9 | 9606.3  | 8102.6  | 7043.4  | 6338.6  | 5528.8  | 4683.0  | 3914.8  | 3291.3  | 2924.4  | 2702.1  |
| 17.5° | 10752.2 | 9787.1  | 8079.1  | 6691.0  | 5706.0  | 4699.2  | 3764.8  | 2857.5  | 2270.1  | 1991.8  | 1849.0  |
| 20°   | 11554.7 | 10361.8 | 8070.0  | 6259.0  | 4954.1  | 3716.0  | 2550.2  | 1879.7  | 1523.6  | 1368.2  | 1301.3  |
| 22.5° | 12689.8 | 11095.6 | 8142.3  | 5832.5  | 4171.5  | 2655.1  | 1760.4  | 1380.9  | 1198.3  | 1115.2  | 1077.2  |
| 25°   | 14150.1 | 12125.9 | 8346.6  | 5445.7  | 3435.9  | 1980.9  | 1371.8  | 1156.7  | 1028.4  | 963.3   | 936.2   |
| 27.5° | 15706.3 | 13311.5 | 8664.7  | 5109.5  | 2837.6  | 1579.7  | 1174.8  | 990.5   | 898.3   | 853.1   | 827.8   |
| 30°   | 16989.6 | 14685.1 | 8986.4  | 4735.4  | 2403.8  | 1377.2  | 1075.4  | 903.7   | 797.1   | 768.1   | 744.6   |
| 32.5° | 18112.0 | 15724.4 | 9214.1  | 4397.4  | 2120.1  | 1223.6  | 972.4   | 807.9   | 735.6   | 679.6   | 654.3   |
| 35°   | 19274.1 | 16590.1 | 9206.9  | 4160.6  | 1924.9  | 1107.9  | 885.6   | 723.0   | 636.2   | 571.1   | 551.3   |
| 37.5° | 20532.1 | 17567.9 | 9049.7  | 3958.2  | 1839.9  | 1015.8  | 836.8   | 677.8   | 591.0   | 526.0   | 500.7   |
| 40°   | 22005.1 | 18594.5 | 8888.8  | 3768.4  | 1816.4  | 941.7   | 802.5   | 641.6   | 549.4   | 486.2   | 460.9   |
| 42.5° | 23440.2 | 19519.9 | 8747.8  | 3627.5  | 1715.2  | 939.8   | 771.8   | 614.5   | 516.9   | 455.5   | 426.5   |
| 45°   | 24587.9 | 20382.1 | 8720.7  | 3542.5  | 1608.6  | 972.4   | 755.5   | 596.4   | 491.6   | 430.2   | 403.1   |
| 47.5° | 25542.2 | 21318.3 | 8894.2  | 3482.9  | 1507.4  | 887.4   | 795.3   | 583.8   | 468.1   | 408.5   | 377.7   |
| 50°   | 26677.2 | 22467.8 | 9302.7  | 3385.3  | 1400.7  | 798.9   | 910.9   | 587.4   | 448.2   | 386.8   | 354.3   |
| 52.5° | 28260.5 | 24058.3 | 9902.8  | 3220.8  | 1254.3  | 717.5   | 896.5   | 591.0   | 426.5   | 363.3   | 330.8   |
| 55°   | 30035.4 | 26044.6 | 10548.0 | 2947.9  | 1050.1  | 610.9   | 768.1   | 565.7   | 385.0   | 338.0   | 307.3   |
| 57.5° | 31900.6 | 27846.6 | 10931.2 | 2622.5  | 835.0   | 527.8   | 614.5   | 515.1   | 339.8   | 303.6   | 283.8   |
| 60°   | 32193.4 | 28531.6 | 10755.8 | 2223.1  | 663.3   | 459.1   | 455.5   | 524.1   | 303.6   | 267.5   | 253.0   |
| 62.5° | 31465.0 | 27671.3 | 9908.2  | 1867.0  | 554.9   | 403.1   | 374.1   | 457.3   | 274.7   | 238.6   | 224.1   |
| 65°   | 30064.3 | 25345.2 | 8534.5  | 1682.7  | 515.1   | 345.2   | 310.9   | 321.7   | 240.4   | 207.9   | 195.2   |
| 67.5° | 28115.9 | 22240.1 | 7007.3  | 1577.9  | 509.7   | 296.4   | 265.7   | 244.0   | 207.9   | 180.7   | 169.9   |
| 70°   | 24132.4 | 18527.7 | 5590.3  | 1520.0  | 495.2   | 249.4   | 224.1   | 198.8   | 173.5   | 153.6   | 144.6   |
| 72.5° | 17761.3 | 13129.0 | 4348.6  | 1456.8  | 498.8   | 198.8   | 195.2   | 164.5   | 139.2   | 119.3   | 115.7   |
| 75°   | 10262.4 | 7500.7  | 2852.1  | 1180.2  | 475.3   | 153.6   | 162.7   | 115.7   | 97.6    | 83.1    | 83.1    |
| 77.5° | 5469.2  | 4574.5  | 1086.2  | 491.6   | 173.5   | 97.6    | 92.2    | 68.7    | 61.5    | 50.6    | 48.8    |
| 80°   | 2384.0  | 2013.4  | 327.1   | 137.4   | 95.8    | 52.4    | 34.3    | 30.7    | 27.1    | 21.7    | 19.9    |
| 82.5° | 844.1   | 728.4   | 106.6   | 66.9    | 41.6    | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| 85°   | 191.6   | 137.4   | 0.0     | 16.3    | 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     |



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**CANDELA DISTRIBUTION (continued):**

|       | 185°    | 195°    | 205°    | 215°    | 225°    | 235°    | 245°    | 255°    | 265°    | 270°    | 275°    |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 12800.0 | 12800.0 | 12800.0 | 12800.0 | 12800.0 | 12800.0 | 12800.0 | 12800.0 | 12800.0 | 12800.0 | 12800.0 |
| 2.5°  | 10857.1 | 10817.3 | 10582.3 | 10591.4 | 10632.9 | 10692.6 | 10551.6 | 10616.7 | 10792.0 | 10960.1 | 11023.3 |
| 5°    | 8395.4  | 8404.4  | 8261.6  | 8350.2  | 8429.7  | 8483.9  | 8256.2  | 8259.8  | 8399.0  | 8588.8  | 8688.2  |
| 7.5°  | 5915.6  | 5901.2  | 5908.4  | 6119.9  | 6269.9  | 6161.4  | 6246.4  | 5951.8  | 5969.8  | 6105.4  | 6004.2  |
| 10°   | 4397.4  | 4198.6  | 4086.5  | 4245.6  | 4410.1  | 4350.4  | 4204.0  | 4108.2  | 4175.1  | 4325.1  | 4314.3  |
| 12.5° | 3455.8  | 3170.2  | 3002.1  | 2888.2  | 3023.8  | 2911.7  | 2908.1  | 2825.0  | 2734.6  | 2750.9  | 2991.2  |
| 15°   | 2599.0  | 2391.2  | 2192.4  | 2009.8  | 2006.2  | 1968.3  | 1774.9  | 1558.0  | 1539.9  | 1550.8  | 1675.5  |
| 17.5° | 1787.5  | 1717.0  | 1635.7  | 1478.5  | 1436.9  | 1277.8  | 1089.9  | 1003.1  | 959.7   | 979.6   | 1021.2  |
| 20°   | 1256.1  | 1229.0  | 1238.1  | 1153.1  | 1093.5  | 941.7   | 831.4   | 797.1   | 789.8   | 809.7   | 829.6   |
| 22.5° | 1041.1  | 992.3   | 986.8   | 948.9   | 889.2   | 779.0   | 719.3   | 699.5   | 690.4   | 708.5   | 723.0   |
| 25°   | 910.9   | 862.1   | 842.2   | 818.8   | 755.5   | 679.6   | 643.4   | 625.4   | 616.3   | 627.2   | 636.2   |
| 27.5° | 802.5   | 757.3   | 739.2   | 723.0   | 661.5   | 607.3   | 578.4   | 562.1   | 554.9   | 558.5   | 567.5   |
| 30°   | 721.2   | 681.4   | 657.9   | 638.0   | 585.6   | 547.6   | 522.3   | 506.1   | 498.8   | 498.8   | 507.9   |
| 32.5° | 636.2   | 614.5   | 592.8   | 567.5   | 518.7   | 493.4   | 468.1   | 450.0   | 442.8   | 444.6   | 451.9   |
| 35°   | 529.6   | 522.3   | 527.8   | 504.3   | 462.7   | 441.0   | 415.7   | 395.8   | 390.4   | 392.2   | 399.4   |
| 37.5° | 469.9   | 437.4   | 457.3   | 444.6   | 421.1   | 392.2   | 359.7   | 341.6   | 332.6   | 338.0   | 341.6   |
| 40°   | 432.0   | 392.2   | 377.7   | 390.4   | 386.8   | 339.8   | 310.9   | 292.8   | 285.6   | 287.4   | 291.0   |
| 42.5° | 399.4   | 352.4   | 319.9   | 318.1   | 339.8   | 296.4   | 265.7   | 249.4   | 240.4   | 240.4   | 244.0   |
| 45°   | 368.7   | 318.1   | 278.3   | 247.6   | 285.6   | 251.2   | 222.3   | 207.9   | 197.0   | 197.0   | 198.8   |
| 47.5° | 345.2   | 289.2   | 242.2   | 202.4   | 215.1   | 206.0   | 182.5   | 168.1   | 157.2   | 157.2   | 159.1   |
| 50°   | 323.5   | 260.3   | 209.7   | 169.9   | 160.9   | 169.9   | 148.2   | 131.9   | 124.7   | 122.9   | 126.5   |
| 52.5° | 300.0   | 231.3   | 178.9   | 144.6   | 126.5   | 128.3   | 115.7   | 104.8   | 95.8    | 95.8    | 99.4    |
| 55°   | 276.5   | 207.9   | 155.4   | 122.9   | 104.8   | 95.8    | 92.2    | 84.9    | 77.7    | 77.7    | 81.3    |
| 57.5° | 253.0   | 182.5   | 131.9   | 101.2   | 83.1    | 75.9    | 75.9    | 70.5    | 65.1    | 65.1    | 68.7    |
| 60°   | 231.3   | 157.2   | 108.4   | 83.1    | 65.1    | 63.3    | 65.1    | 59.6    | 56.0    | 56.0    | 59.6    |
| 62.5° | 206.0   | 133.7   | 88.6    | 68.7    | 52.4    | 50.6    | 56.0    | 52.4    | 48.8    | 48.8    | 52.4    |
| 65°   | 175.3   | 113.9   | 70.5    | 52.4    | 39.8    | 39.8    | 47.0    | 43.4    | 39.8    | 39.8    | 43.4    |
| 67.5° | 148.2   | 95.8    | 54.2    | 38.0    | 28.9    | 30.7    | 39.8    | 36.1    | 34.3    | 34.3    | 38.0    |
| 70°   | 122.9   | 74.1    | 38.0    | 23.5    | 16.3    | 23.5    | 30.7    | 30.7    | 30.7    | 30.7    | 34.3    |
| 72.5° | 92.2    | 50.6    | 21.7    | 9.0     | 7.2     | 16.3    | 25.3    | 28.9    | 27.1    | 27.1    | 32.5    |
| 75°   | 59.6    | 28.9    | 7.2     | 0.0     | 0.0     | 9.0     | 19.9    | 23.5    | 23.5    | 21.7    | 27.1    |
| 77.5° | 34.3    | 9.0     | 0.0     | 0.0     | 0.0     | 0.0     | 12.7    | 10.8    | 9.0     | 7.2     | 12.7    |
| 80°   | 9.0     | 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: P324294

CATALOG NUMBER: GLEON-SA0C-827-U-SLL-HSS

**CANDELA DISTRIBUTION (continued):**

|       | 285°    | 295°    | 305°    | 315°    | 325°    | 335°    | 345°    | 355°    | 359°    | 360°    |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 12800.0 | 12800.0 | 12800.0 | 12800.0 | 12800.0 | 12800.0 | 12800.0 | 12800.0 | 12800.0 | 12800.0 |
| 2.5°  | 11278.2 | 11491.5 | 11791.5 | 12109.6 | 12599.4 | 12988.0 | 13369.3 | 13696.5 | 13823.0 | 13875.4 |
| 5°    | 8926.8  | 9239.4  | 9678.6  | 10242.5 | 11126.4 | 11921.6 | 12727.7 | 13539.2 | 13891.7 | 13980.2 |
| 7.5°  | 6405.4  | 6804.9  | 7363.4  | 8070.0  | 9105.7  | 10135.9 | 11261.9 | 12453.0 | 12998.8 | 13136.2 |
| 10°   | 4740.8  | 5228.8  | 5868.6  | 6613.3  | 7601.9  | 8661.1  | 9888.3  | 11249.3 | 11872.8 | 12055.4 |
| 12.5° | 3363.6  | 4023.3  | 4880.0  | 5785.5  | 6642.2  | 7587.5  | 8829.2  | 10329.3 | 10983.6 | 11180.6 |
| 15°   | 1975.5  | 2613.5  | 3627.5  | 4840.2  | 5937.3  | 6895.2  | 8156.8  | 9857.6  | 10578.7 | 10777.5 |
| 17.5° | 1133.2  | 1451.3  | 2217.7  | 3569.6  | 5058.9  | 6385.5  | 7945.3  | 9975.0  | 10824.5 | 11008.9 |
| 20°   | 865.7   | 967.0   | 1277.8  | 2299.0  | 4032.3  | 5884.9  | 7945.3  | 10640.2 | 11686.7 | 11957.8 |
| 22.5° | 757.3   | 831.4   | 957.9   | 1371.8  | 2967.8  | 5348.1  | 8037.5  | 11601.7 | 12969.9 | 13269.9 |
| 25°   | 672.4   | 739.2   | 847.7   | 1032.0  | 2024.3  | 4710.1  | 8256.2  | 12781.9 | 14480.9 | 14869.5 |
| 27.5° | 601.9   | 665.1   | 762.7   | 903.7   | 1384.5  | 3940.1  | 8550.8  | 14166.4 | 16147.3 | 16458.2 |
| 30°   | 538.6   | 598.2   | 686.8   | 786.2   | 1068.2  | 3067.2  | 8802.0  | 15471.4 | 17455.9 | 17790.2 |
| 32.5° | 479.0   | 533.2   | 612.7   | 686.8   | 874.8   | 2268.3  | 8829.2  | 16505.2 | 18542.1 | 18874.7 |
| 35°   | 422.9   | 471.7   | 544.0   | 601.9   | 724.8   | 1791.1  | 8408.0  | 17401.7 | 19628.4 | 20067.6 |
| 37.5° | 368.7   | 415.7   | 479.0   | 522.3   | 638.0   | 1460.4  | 7764.6  | 18401.2 | 21021.9 | 21428.5 |
| 40°   | 318.1   | 359.7   | 424.7   | 453.7   | 603.7   | 1122.4  | 7065.1  | 19449.4 | 22388.3 | 22760.6 |
| 42.5° | 271.1   | 310.9   | 374.1   | 430.2   | 529.6   | 838.6   | 6309.6  | 20432.7 | 23617.3 | 24007.7 |
| 45°   | 225.9   | 267.5   | 330.8   | 455.5   | 439.2   | 627.2   | 5501.7  | 21085.1 | 24587.9 | 25012.6 |
| 47.5° | 182.5   | 229.5   | 316.3   | 433.8   | 350.6   | 460.9   | 4861.9  | 21703.3 | 25323.5 | 25742.8 |
| 50°   | 146.4   | 193.4   | 356.1   | 386.8   | 287.4   | 352.4   | 4594.4  | 22256.3 | 25806.1 | 26209.1 |
| 52.5° | 119.3   | 162.7   | 336.2   | 296.4   | 240.4   | 291.0   | 4739.0  | 23152.8 | 26252.5 | 26505.5 |
| 55°   | 99.4    | 128.3   | 202.4   | 206.0   | 204.2   | 247.6   | 4917.9  | 24439.7 | 27407.4 | 27526.7 |
| 57.5° | 86.8    | 103.0   | 141.0   | 159.1   | 171.7   | 220.5   | 4921.6  | 26286.8 | 29194.9 | 29269.1 |
| 60°   | 74.1    | 90.4    | 117.5   | 128.3   | 148.2   | 197.0   | 4742.6  | 26932.1 | 29898.0 | 30143.8 |
| 62.5° | 65.1    | 79.5    | 97.6    | 106.6   | 124.7   | 177.1   | 4323.3  | 25997.7 | 28932.9 | 29350.4 |
| 65°   | 57.8    | 72.3    | 81.3    | 90.4    | 110.3   | 159.1   | 3632.9  | 24128.8 | 27331.5 | 27767.1 |
| 67.5° | 50.6    | 63.3    | 72.3    | 81.3    | 99.4    | 141.0   | 2675.0  | 21958.1 | 25493.4 | 25854.9 |
| 70°   | 45.2    | 56.0    | 65.1    | 72.3    | 86.8    | 119.3   | 1623.0  | 18632.5 | 22952.2 | 23102.2 |
| 72.5° | 43.4    | 50.6    | 59.6    | 65.1    | 75.9    | 104.8   | 822.4   | 13692.9 | 18348.7 | 18592.7 |
| 75°   | 38.0    | 45.2    | 54.2    | 57.8    | 66.9    | 90.4    | 334.4   | 8993.6  | 13297.0 | 13689.3 |
| 77.5° | 30.7    | 41.6    | 48.8    | 52.4    | 57.8    | 74.1    | 169.9   | 5747.5  | 9331.6  | 9584.6  |
| 80°   | 10.8    | 30.7    | 41.6    | 43.4    | 48.8    | 54.2    | 112.1   | 3146.7  | 5413.2  | 5521.6  |
| 82.5° | 0.0     | 19.9    | 32.5    | 30.7    | 34.3    | 41.6    | 72.3    | 1496.5  | 3573.2  | 3613.0  |
| 85°   | 0.0     | 9.0     | 25.3    | 19.9    | 14.5    | 28.9    | 25.3    | 327.1   | 1874.3  | 1952.0  |
| 87.5° | 0.0     | 0.0     | 1.8     | 9.0     | 7.2     | 10.8    | 3.6     | 1.8     | 169.9   | 215.1   |
| 90°   | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |

LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

Invue

Report Number: SP1-2407-157-9

Test Date: 10/03/2024

Luminaire Tested: EMM2-HTN-SA1A-827-U-5WQ

Data applicable to all product families utilizing light square engine

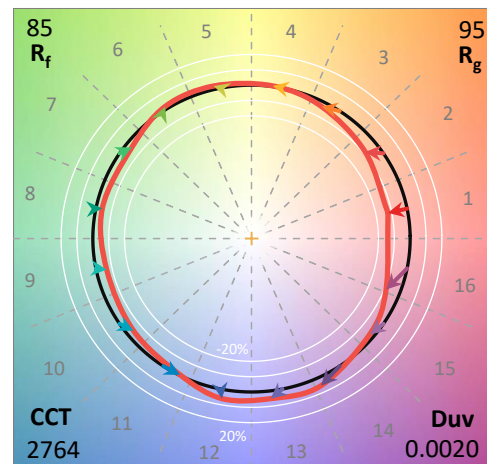
### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-157-9  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 10/03/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: Invue  
 Catalog Number: **EMM2-HTN-SA1A-827-U-5WQ**  
 Description: Epic Modern Light Square 40W 5WQ Optic

### Spectral Parameters

CCT (K): 2764  
 CIE  $u'$ : 0.2591  
 CIE  $v'$ : 0.5290  
 Duv: 0.0020  
 CIE x: 0.4581  
 CIE y: 0.4156  
 CIE z: 0.1263  
 Peak Wavelength (nm): 603  
 Dominant Wavelength (nm): 583  
 Purity: 62.2537  
 R<sub>f</sub>: 84.7  
 R<sub>g</sub>: 94.6

CRI (Ra): 80.9  
 R1: 78.8  
 R2: 89.9  
 R3: 96.2  
 R4: 79.1  
 R5: 79.1  
 R6: 88.8  
 R7: 81.3  
 R8: 54.3  
 R9: -1.5  
 R10: 77.9  
 R11: 78.9  
 R12: 71.6  
 R13: 81.2  
 R14: 98.5  
 R15: 69.9



### Test Conditions

Stabilization Time: 81M  
 Operation Time: 2H 21M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-157-9

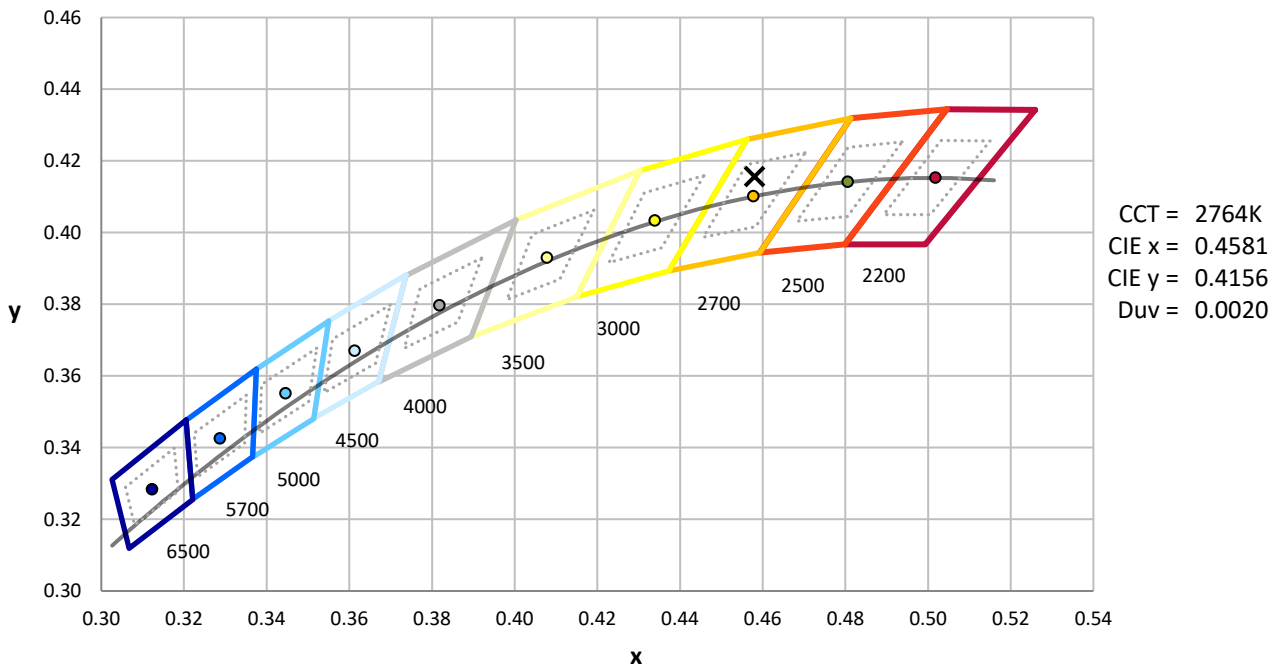
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | IN0058                | 6/18/2024        | 12/18/2024           |
| Power Meter                    | INXT2011004           | 2/8/2024         | 2/8/2025             |
| AC Power Source                | IN0063                | 10/24/2023       | 10/24/2024           |
| DC Power Source                | IN0208                | 10/24/2023       | 10/24/2024           |
| Sphere Thermometer             | IN0085                | 10/24/2023       | 10/24/2024           |
| Room Thermometer               | IN0046                | 10/24/2023       | 10/24/2024           |

REPORT NUMBER: SP1-2407-157-9

**CIE 1931 Chromaticity Diagram**



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



Point lies inside the ANSI 2700K 4-step quadrangle

REPORT NUMBER: SP1-2407-157-9

### Photopic Flux vs. Wavelength

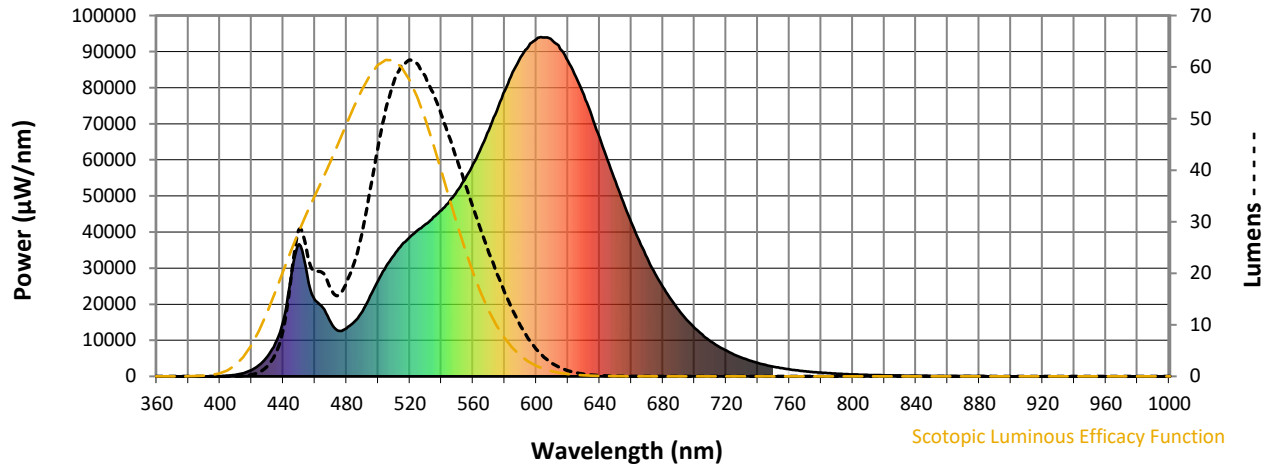


### Photopic Lumens: 4337.9

| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) |
|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|
| 360       | 0                | 0.0              | 490       | 18018            | 2.6              | 620       | 87426            | 22.8             | 750       | 2680             | 0.0              | 880       | 58               | 0.0              |
| 365       | 0                | 0.0              | 495       | 22295            | 3.9              | 625       | 83013            | 18.2             | 755       | 2287             | 0.0              | 885       | 46               | 0.0              |
| 370       | 0                | 0.0              | 500       | 26478            | 5.8              | 630       | 78077            | 14.1             | 760       | 1944             | 0.0              | 890       | 45               | 0.0              |
| 375       | 0                | 0.0              | 505       | 30524            | 8.5              | 635       | 72080            | 10.7             | 765       | 1653             | 0.0              | 895       | 41               | 0.0              |
| 380       | 0                | 0.0              | 510       | 33611            | 11.5             | 640       | 66249            | 7.9              | 770       | 1413             | 0.0              | 900       | 38               | 0.0              |
| 385       | 0                | 0.0              | 515       | 36490            | 15.2             | 645       | 59973            | 5.7              | 775       | 1198             | 0.0              | 905       | 33               | 0.0              |
| 390       | 0                | 0.0              | 520       | 38610            | 18.7             | 650       | 53972            | 3.9              | 780       | 1025             | 0.0              | 910       | 30               | 0.0              |
| 395       | 0                | 0.0              | 525       | 40511            | 21.9             | 655       | 48369            | 2.7              | 785       | 874              | 0.0              | 915       | 23               | 0.0              |
| 400       | 48               | 0.0              | 530       | 42223            | 24.9             | 660       | 42641            | 1.8              | 790       | 747              | 0.0              | 920       | 24               | 0.0              |
| 405       | 201              | 0.0              | 535       | 44137            | 27.6             | 665       | 37602            | 1.1              | 795       | 639              | 0.0              | 925       | 22               | 0.0              |
| 410       | 457              | 0.0              | 540       | 46032            | 30.0             | 670       | 32798            | 0.7              | 800       | 547              | 0.0              | 930       | 22               | 0.0              |
| 415       | 925              | 0.0              | 545       | 48553            | 32.5             | 675       | 28558            | 0.5              | 805       | 473              | 0.0              | 935       | 17               | 0.0              |
| 420       | 1816             | 0.0              | 550       | 51408            | 34.9             | 680       | 24782            | 0.3              | 810       | 401              | 0.0              | 940       | 13               | 0.0              |
| 425       | 3217             | 0.0              | 555       | 54711            | 37.4             | 685       | 21386            | 0.2              | 815       | 351              | 0.0              | 945       | 6                | 0.0              |
| 430       | 5520             | 0.0              | 560       | 58847            | 40.0             | 690       | 18413            | 0.1              | 820       | 307              | 0.0              | 950       | 10               | 0.0              |
| 435       | 9225             | 0.1              | 565       | 63386            | 42.4             | 695       | 15721            | 0.1              | 825       | 261              | 0.0              | 955       | 11               | 0.0              |
| 440       | 15522            | 0.2              | 570       | 68196            | 44.3             | 700       | 13432            | 0.0              | 830       | 228              | 0.0              | 960       | 8                | 0.0              |
| 445       | 27642            | 0.6              | 575       | 73613            | 46.0             | 705       | 11513            | 0.0              | 835       | 193              | 0.0              | 965       | 12               | 0.0              |
| 450       | 36602            | 0.9              | 580       | 79207            | 47.1             | 710       | 9780             | 0.0              | 840       | 174              | 0.0              | 970       | 3                | 0.0              |
| 455       | 28292            | 0.9              | 585       | 84248            | 47.0             | 715       | 8356             | 0.0              | 845       | 151              | 0.0              | 975       | 8                | 0.0              |
| 460       | 21166            | 0.9              | 590       | 88397            | 45.7             | 720       | 7161             | 0.0              | 850       | 123              | 0.0              | 980       | 2                | 0.0              |
| 465       | 19092            | 1.0              | 595       | 91428            | 43.4             | 725       | 6067             | 0.0              | 855       | 106              | 0.0              | 985       | 13               | 0.0              |
| 470       | 14951            | 0.9              | 600       | 93452            | 40.3             | 730       | 5164             | 0.0              | 860       | 95               | 0.0              | 990       | 16               | 0.0              |
| 475       | 12606            | 1.0              | 605       | 93959            | 36.4             | 735       | 4393             | 0.0              | 865       | 82               | 0.0              | 995       | 20               | 0.0              |
| 480       | 13323            | 1.3              | 610       | 93079            | 32.0             | 740       | 3694             | 0.0              | 870       | 77               | 0.0              | 1000      | 0                | 0.0              |
| 485       | 15164            | 1.8              | 615       | 90707            | 27.3             | 745       | 3157             | 0.0              | 875       | 65               | 0.0              |           |                  |                  |

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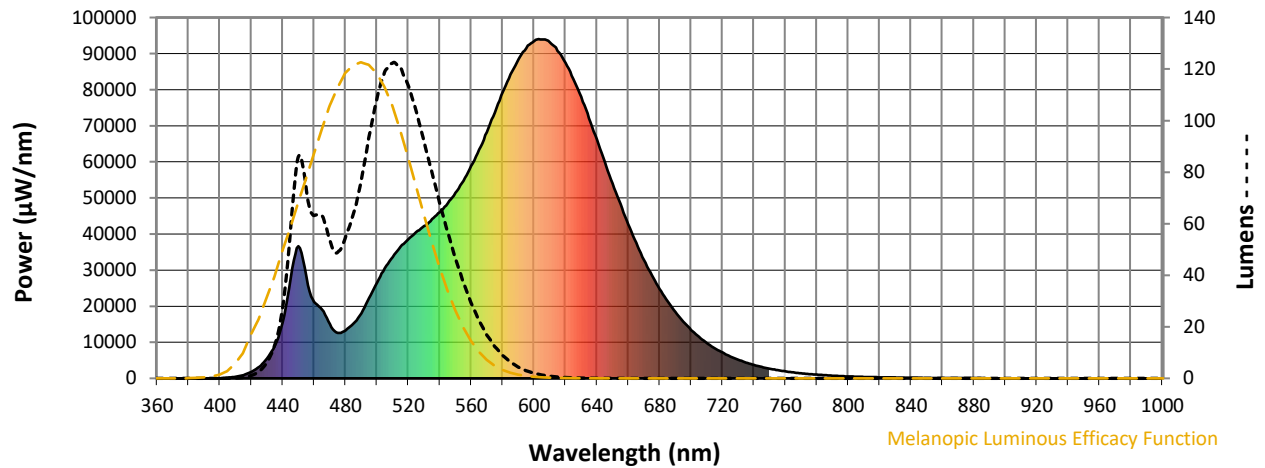
### Scotopic Flux vs. Wavelength


**Scotopic Lumens: 5286.7**
**S/P: 1.22**

| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) |
|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|
| 360       | 0                | 0.0              | 490       | 18018            | 75.9             | 620       | 87426            | 0.4              | 750       | 2680             | 0.0              | 880       | 58               | 0.0              |
| 365       | 0                | 0.0              | 495       | 22295            | 93.2             | 625       | 83013            | 0.2              | 755       | 2287             | 0.0              | 885       | 46               | 0.0              |
| 370       | 0                | 0.0              | 500       | 26478            | 107.8            | 630       | 78077            | 0.1              | 760       | 1944             | 0.0              | 890       | 45               | 0.0              |
| 375       | 0                | 0.0              | 505       | 30524            | 118.7            | 635       | 72080            | 0.1              | 765       | 1653             | 0.0              | 895       | 41               | 0.0              |
| 380       | 0                | 0.0              | 510       | 33611            | 122.2            | 640       | 66249            | 0.1              | 770       | 1413             | 0.0              | 900       | 38               | 0.0              |
| 385       | 0                | 0.0              | 515       | 36490            | 120.8            | 645       | 59973            | 0.0              | 775       | 1198             | 0.0              | 905       | 33               | 0.0              |
| 390       | 0                | 0.0              | 520       | 38610            | 113.9            | 650       | 53972            | 0.0              | 780       | 1025             | 0.0              | 910       | 30               | 0.0              |
| 395       | 0                | 0.0              | 525       | 40511            | 104.1            | 655       | 48369            | 0.0              | 785       | 874              | 0.0              | 915       | 23               | 0.0              |
| 400       | 48               | 0.0              | 530       | 42223            | 92.4             | 660       | 42641            | 0.0              | 790       | 747              | 0.0              | 920       | 24               | 0.0              |
| 405       | 201              | 0.0              | 535       | 44137            | 80.5             | 665       | 37602            | 0.0              | 795       | 639              | 0.0              | 925       | 22               | 0.0              |
| 410       | 457              | 0.1              | 540       | 46032            | 68.2             | 670       | 32798            | 0.0              | 800       | 547              | 0.0              | 930       | 22               | 0.0              |
| 415       | 925              | 0.3              | 545       | 48553            | 57.1             | 675       | 28558            | 0.0              | 805       | 473              | 0.0              | 935       | 17               | 0.0              |
| 420       | 1816             | 1.1              | 550       | 51408            | 46.7             | 680       | 24782            | 0.0              | 810       | 401              | 0.0              | 940       | 13               | 0.0              |
| 425       | 3217             | 2.5              | 555       | 54711            | 37.4             | 685       | 21386            | 0.0              | 815       | 351              | 0.0              | 945       | 6                | 0.0              |
| 430       | 5520             | 5.9              | 560       | 58847            | 29.4             | 690       | 18413            | 0.0              | 820       | 307              | 0.0              | 950       | 10               | 0.0              |
| 435       | 9225             | 12.5             | 565       | 63386            | 22.5             | 695       | 15721            | 0.0              | 825       | 261              | 0.0              | 955       | 11               | 0.0              |
| 440       | 15522            | 26.3             | 570       | 68196            | 16.9             | 700       | 13432            | 0.0              | 830       | 228              | 0.0              | 960       | 8                | 0.0              |
| 445       | 27642            | 55.2             | 575       | 73613            | 12.4             | 705       | 11513            | 0.0              | 835       | 193              | 0.0              | 965       | 12               | 0.0              |
| 450       | 36602            | 85.4             | 580       | 79207            | 9.0              | 710       | 9780             | 0.0              | 840       | 174              | 0.0              | 970       | 3                | 0.0              |
| 455       | 28292            | 75.1             | 585       | 84248            | 6.3              | 715       | 8356             | 0.0              | 845       | 151              | 0.0              | 975       | 8                | 0.0              |
| 460       | 21166            | 63.2             | 590       | 88397            | 4.4              | 720       | 7161             | 0.0              | 850       | 123              | 0.0              | 980       | 2                | 0.0              |
| 465       | 19092            | 63.2             | 595       | 91428            | 3.0              | 725       | 6067             | 0.0              | 855       | 106              | 0.0              | 985       | 13               | 0.0              |
| 470       | 14951            | 54.2             | 600       | 93452            | 2.0              | 730       | 5164             | 0.0              | 860       | 95               | 0.0              | 990       | 16               | 0.0              |
| 475       | 12606            | 48.8             | 605       | 93959            | 1.3              | 735       | 4393             | 0.0              | 865       | 82               | 0.0              | 995       | 20               | 0.0              |
| 480       | 13323            | 54.2             | 610       | 93079            | 0.9              | 740       | 3694             | 0.0              | 870       | 77               | 0.0              | 1000      | 0                | 0.0              |
| 485       | 15164            | 63.3             | 615       | 90707            | 0.5              | 745       | 3157             | 0.0              | 875       | 65               | 0.0              |           |                  |                  |

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### Melanopic Flux vs. Wavelength



**Melanopic Lumens: 9797**

**M/P: 2.26**

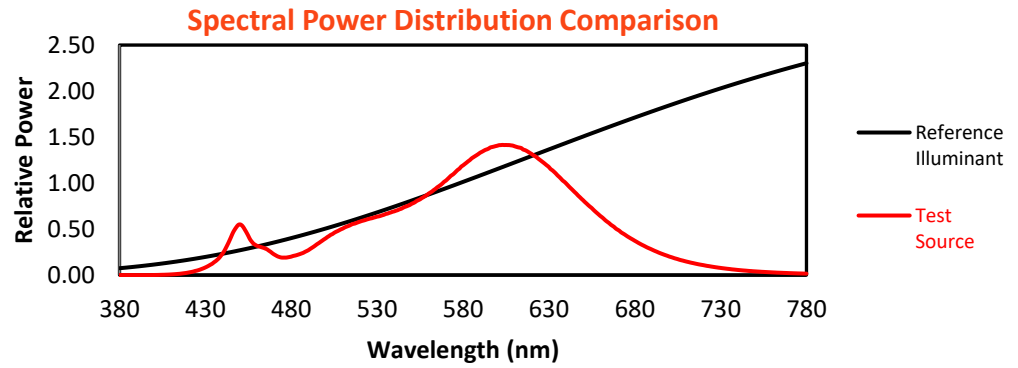
| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) |
|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|
| 360       | 0                | 0.0              | 490       | 18018            | 27.7             | 620       | 87426            | 1.1              | 750       | 2680             | 0.0              | 880       | 58               | 0.0              |
| 365       | 0                | 0.0              | 495       | 22295            | 36.0             | 625       | 83013            | 0.7              | 755       | 2287             | 0.0              | 885       | 46               | 0.0              |
| 370       | 0                | 0.0              | 500       | 26478            | 44.2             | 630       | 78077            | 0.4              | 760       | 1944             | 0.0              | 890       | 45               | 0.0              |
| 375       | 0                | 0.0              | 505       | 30524            | 51.8             | 635       | 72080            | 0.3              | 765       | 1653             | 0.0              | 895       | 41               | 0.0              |
| 380       | 0                | 0.0              | 510       | 33611            | 57.0             | 640       | 66249            | 0.2              | 770       | 1413             | 0.0              | 900       | 38               | 0.0              |
| 385       | 0                | 0.0              | 515       | 36490            | 60.5             | 645       | 59973            | 0.1              | 775       | 1198             | 0.0              | 905       | 33               | 0.0              |
| 390       | 0                | 0.0              | 520       | 38610            | 61.4             | 650       | 53972            | 0.1              | 780       | 1025             | 0.0              | 910       | 30               | 0.0              |
| 395       | 0                | 0.0              | 525       | 40511            | 60.6             | 655       | 48369            | 0.0              | 785       | 874              | 0.0              | 915       | 23               | 0.0              |
| 400       | 48               | 0.0              | 530       | 42223            | 58.2             | 660       | 42641            | 0.0              | 790       | 747              | 0.0              | 920       | 24               | 0.0              |
| 405       | 201              | 0.0              | 535       | 44137            | 55.0             | 665       | 37602            | 0.0              | 795       | 639              | 0.0              | 925       | 22               | 0.0              |
| 410       | 457              | 0.0              | 540       | 46032            | 50.9             | 670       | 32798            | 0.0              | 800       | 547              | 0.0              | 930       | 22               | 0.0              |
| 415       | 925              | 0.1              | 545       | 48553            | 46.6             | 675       | 28558            | 0.0              | 805       | 473              | 0.0              | 935       | 17               | 0.0              |
| 420       | 1816             | 0.3              | 550       | 51408            | 42.0             | 680       | 24782            | 0.0              | 810       | 401              | 0.0              | 940       | 13               | 0.0              |
| 425       | 3217             | 0.8              | 555       | 54711            | 37.4             | 685       | 21386            | 0.0              | 815       | 351              | 0.0              | 945       | 6                | 0.0              |
| 430       | 5520             | 1.9              | 560       | 58847            | 32.9             | 690       | 18413            | 0.0              | 820       | 307              | 0.0              | 950       | 10               | 0.0              |
| 435       | 9225             | 4.1              | 565       | 63386            | 28.4             | 695       | 15721            | 0.0              | 825       | 261              | 0.0              | 955       | 11               | 0.0              |
| 440       | 15522            | 8.7              | 570       | 68196            | 24.1             | 700       | 13432            | 0.0              | 830       | 228              | 0.0              | 960       | 8                | 0.0              |
| 445       | 27642            | 18.5             | 575       | 73613            | 20.0             | 705       | 11513            | 0.0              | 835       | 193              | 0.0              | 965       | 12               | 0.0              |
| 450       | 36602            | 28.3             | 580       | 79207            | 16.3             | 710       | 9780             | 0.0              | 840       | 174              | 0.0              | 970       | 3                | 0.0              |
| 455       | 28292            | 24.7             | 585       | 84248            | 12.9             | 715       | 8356             | 0.0              | 845       | 151              | 0.0              | 975       | 8                | 0.0              |
| 460       | 21166            | 20.4             | 590       | 88397            | 9.8              | 720       | 7161             | 0.0              | 850       | 123              | 0.0              | 980       | 2                | 0.0              |
| 465       | 19092            | 20.1             | 595       | 91428            | 7.3              | 725       | 6067             | 0.0              | 855       | 106              | 0.0              | 985       | 13               | 0.0              |
| 470       | 14951            | 17.2             | 600       | 93452            | 5.3              | 730       | 5164             | 0.0              | 860       | 95               | 0.0              | 990       | 16               | 0.0              |
| 475       | 12606            | 15.7             | 605       | 93959            | 3.7              | 735       | 4393             | 0.0              | 865       | 82               | 0.0              | 995       | 20               | 0.0              |
| 480       | 13323            | 18.0             | 610       | 93079            | 2.5              | 740       | 3694             | 0.0              | 870       | 77               | 0.0              | 1000      | 0                | 0.0              |
| 485       | 15164            | 21.9             | 615       | 90707            | 1.7              | 745       | 3157             | 0.0              | 875       | 65               | 0.0              |           |                  |                  |

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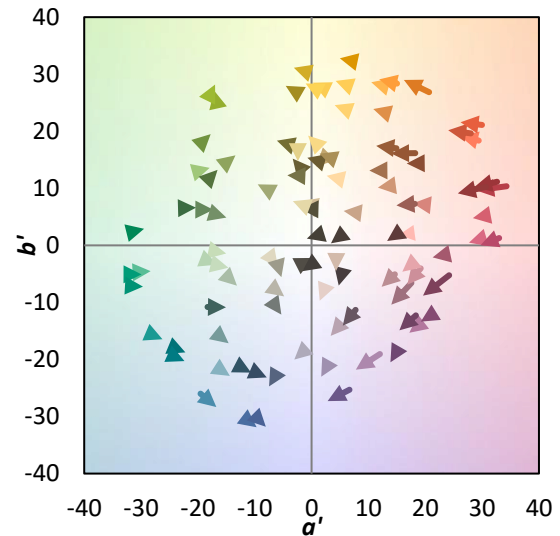
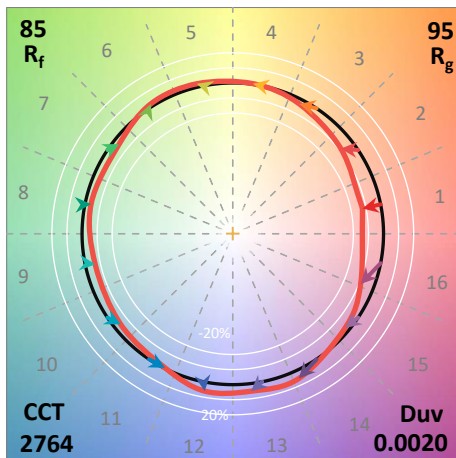
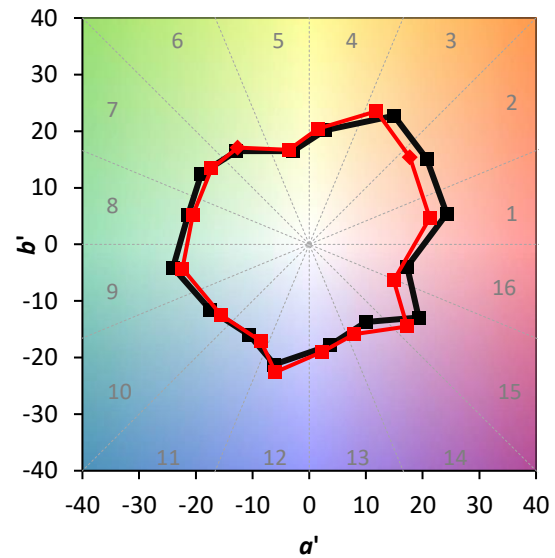
TM-30-18

### Summary

$R_f = 84.7$   
 $R_g = 94.6$   
 $CIE R_a = 80.9$   
 $R_g = -1.5$



### Color Vector Graphics

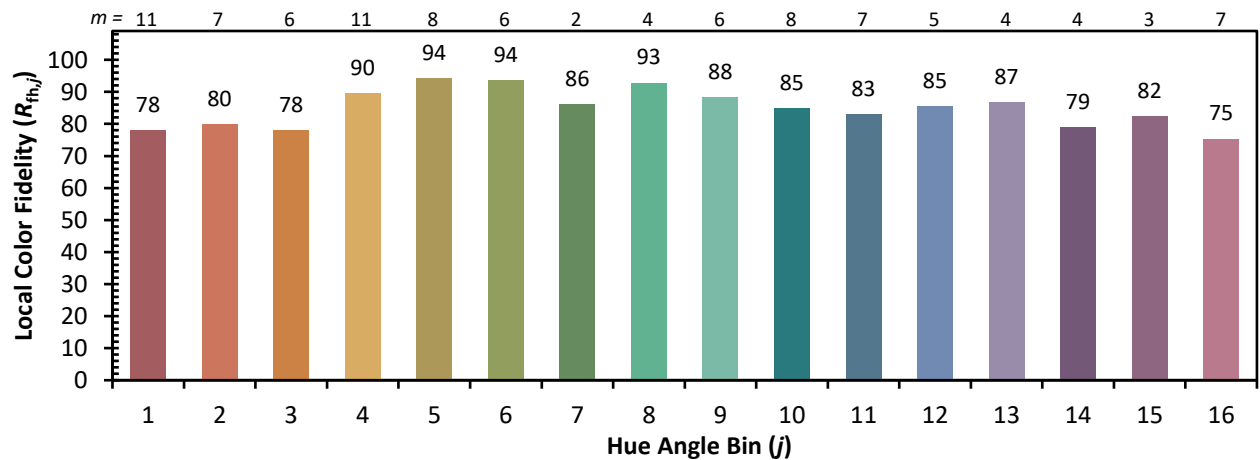
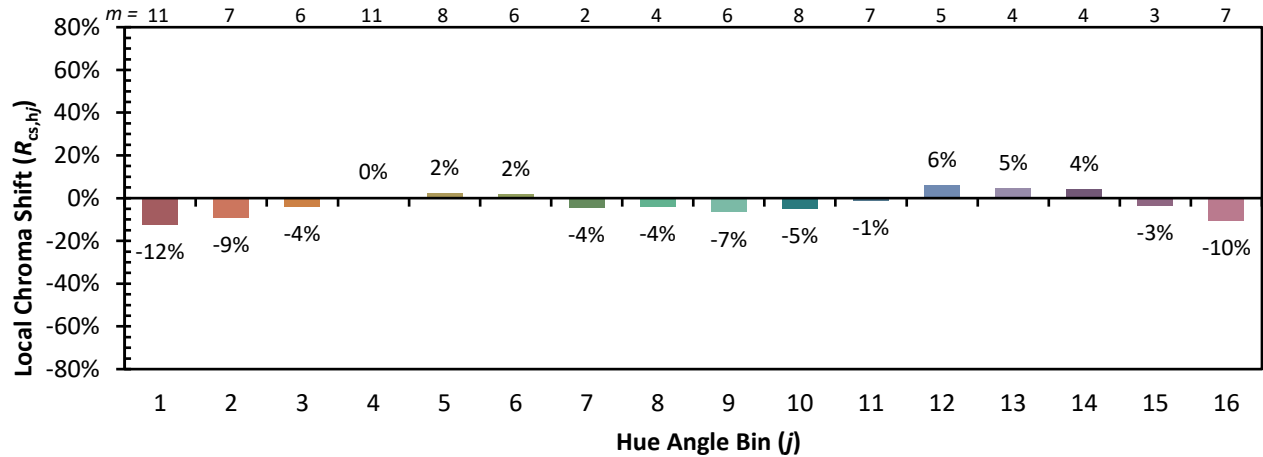


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 84 | CES51 = 95 | CES76 = 81 |
| CES02 = 63 | CES27 = 95 | CES52 = 94 | CES77 = 84 |
| CES03 = 31 | CES28 = 94 | CES53 = 89 | CES78 = 81 |
| CES04 = 71 | CES29 = 87 | CES54 = 91 | CES79 = 89 |
| CES05 = 50 | CES30 = 94 | CES55 = 90 | CES80 = 89 |
| CES06 = 52 | CES31 = 89 | CES56 = 86 | CES81 = 69 |
| CES07 = 43 | CES32 = 82 | CES57 = 85 | CES82 = 96 |
| CES08 = 41 | CES33 = 91 | CES58 = 86 | CES83 = 93 |
| CES09 = 29 | CES34 = 92 | CES59 = 91 | CES84 = 92 |
| CES10 = 77 | CES35 = 96 | CES60 = 94 | CES85 = 76 |
| CES11 = 60 | CES36 = 90 | CES61 = 89 | CES86 = 65 |
| CES12 = 66 | CES37 = 96 | CES62 = 94 | CES87 = 84 |
| CES13 = 44 | CES38 = 98 | CES63 = 87 | CES88 = 86 |
| CES14 = 74 | CES39 = 98 | CES64 = 82 | CES89 = 73 |
| CES15 = 72 | CES40 = 95 | CES65 = 78 | CES90 = 88 |
| CES16 = 48 | CES41 = 96 | CES66 = 81 | CES91 = 82 |
| CES17 = 50 | CES42 = 97 | CES67 = 80 | CES92 = 64 |
| CES18 = 57 | CES43 = 91 | CES68 = 83 | CES93 = 78 |
| CES19 = 73 | CES44 = 99 | CES69 = 88 | CES94 = 59 |
| CES20 = 67 | CES45 = 93 | CES70 = 80 | CES95 = 74 |
| CES21 = 87 | CES46 = 89 | CES71 = 79 | CES96 = 83 |
| CES22 = 79 | CES47 = 92 | CES72 = 92 | CES97 = 88 |
| CES23 = 92 | CES48 = 83 | CES73 = 75 | CES98 = 83 |
| CES24 = 91 | CES49 = 90 | CES74 = 91 | CES99 = 74 |
| CES25 = 72 | CES50 = 94 | CES75 = 81 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)