

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: P321044

Luminaire Tested: **GLEON-SA0B-760-U-AFL**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P321044  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-29)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: McGRAW-EDISON  
Catalog Number: GLEON-SA0B-760-U-AFL  
Description: GALLEON AREA AND ROADWAY LUMINAIRE  
(10) 70 CRI, 5700K, 800mA LIGHTSQUARES WITH 16 LEDS EACH AND AUTOMOTIVE  
FRONTLINE OPTICS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 58028 lumens  
Efficiency: N/A  
Efficacy: 138.5 lumens/watt  
Luminous Opening: Rectangular (W 2.5' x L: 1' x H: 0')  
IES Classification: Type II - Short  
BUG Rating: B4 - U0 - G4

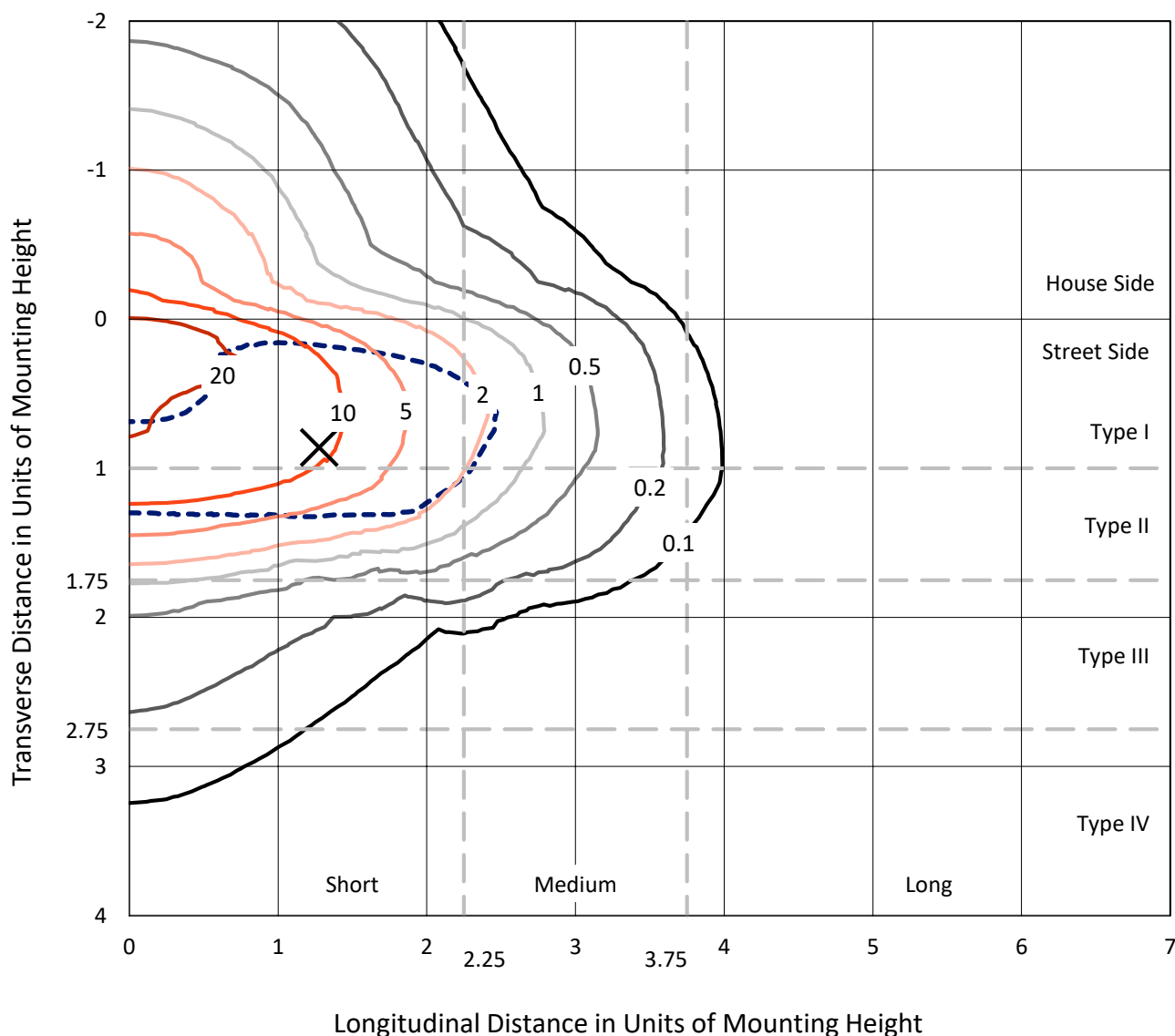
Input Watts (W): 419  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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 CATALOG NUMBER: GLEON-SA0B-760-U-AFL

## Iso-Footcandle Lines of Horizontal Illumination

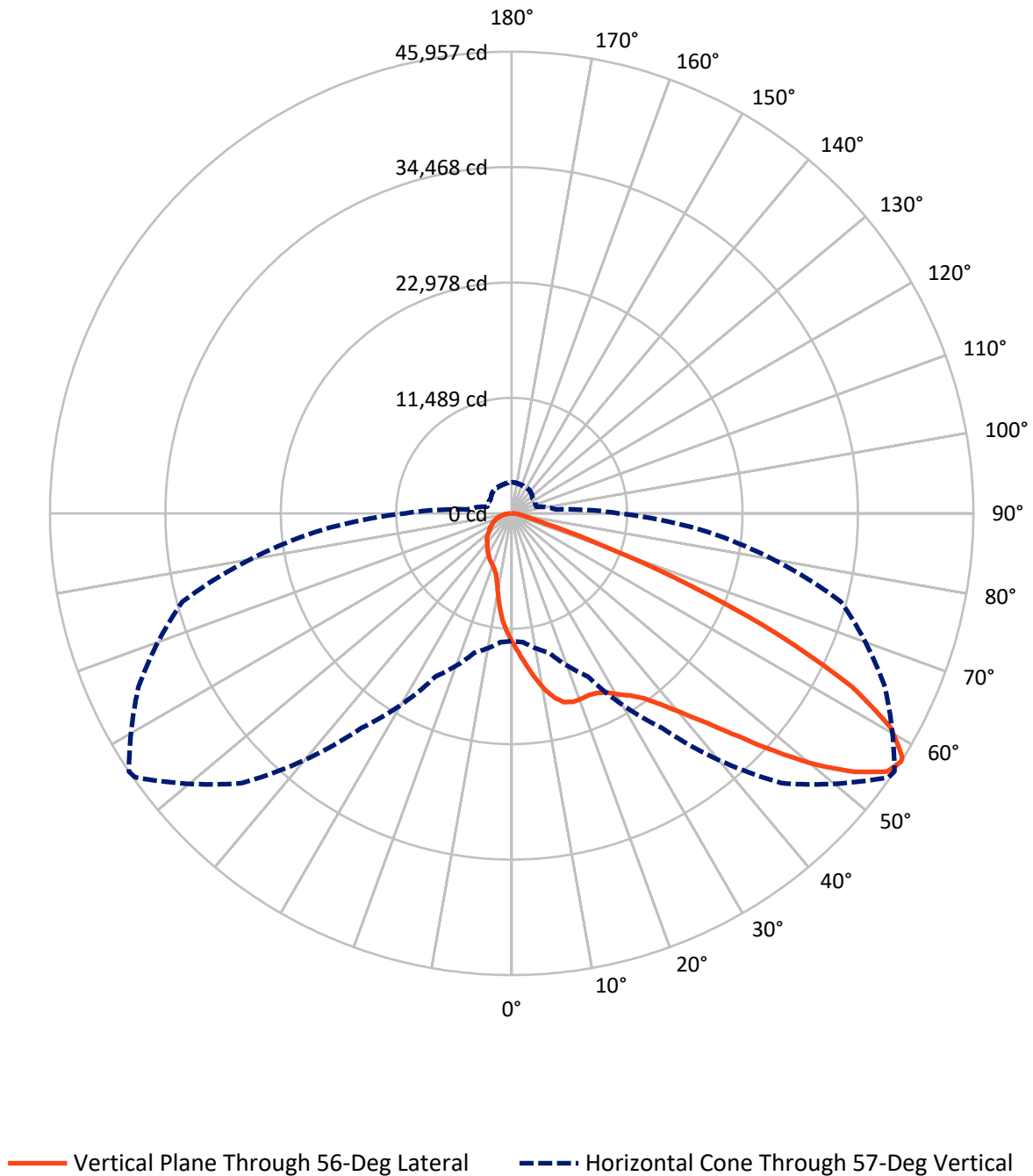
✕ Max cd  
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 28.5 fc  
 Type II - Short - N/A

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## Luminous Intensity Polar Plot



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**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 10002.8  | 0.0    | 10002.8 |
|                    | % Fixture | 17.2     | 0.0    | 17.2    |
| <b>Street Side</b> | Lumens    | 48025.2  | 0.0    | 48025.2 |
|                    | % Fixture | 82.8     | 0.0    | 82.8    |
| <b>Total</b>       | Lumens    | 58028.0  | 0.0    | 58028.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 1229.5  | 2.1       |
| 10°-20°   | 3476.0  | 6.0       |
| 20°-30°   | 5661.7  | 9.8       |
| 30°-40°   | 8463.7  | 14.6      |
| 40°-50°   | 12837.6 | 22.1      |
| 50°-60°   | 14388.7 | 24.8      |
| 60°-70°   | 8498.5  | 14.6      |
| 70°-80°   | 2784.4  | 4.8       |
| 80°-90°   | 687.9   | 1.2       |
| 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°    | 58028.0 | 100.0     |
| 0°-180°   | 58028.0 | 100.0     |

**Coefficient of Utilization**



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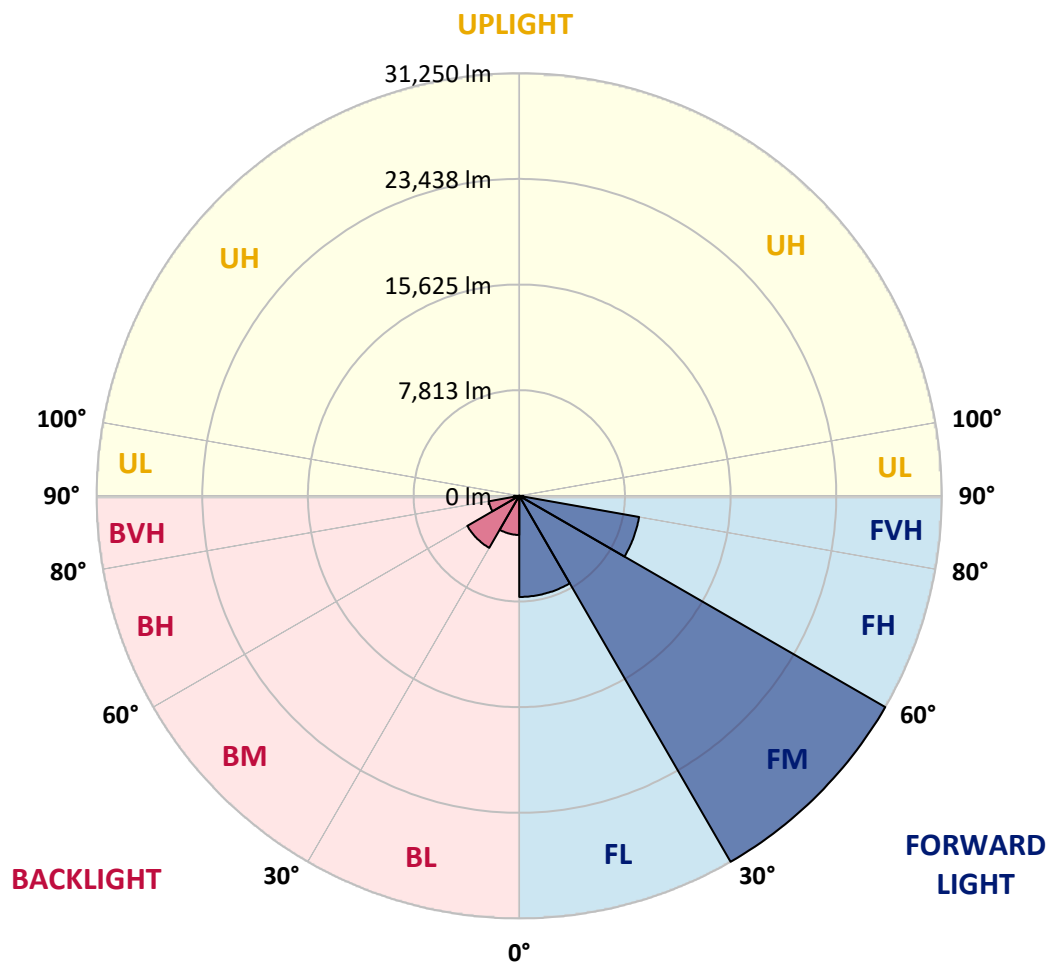
CATALOG NUMBER: GLEON-SA0B-760-U-AFL

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

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |          |
|------|-------------|---------|-----------|-------------------------|------|----------|
|      |             |         |           | B                       | U    | G        |
| FL   | (0°-30°)    | 7474.9  | 12.9      |                         |      |          |
| FM   | (30°-60°)   | 31250.0 | 53.9      |                         |      |          |
| FH   | (60°-80°)   | 8997.4  | 15.5      |                         |      | G4/12000 |
| FVH  | (80°-90°)   | 302.9   | 0.5       |                         |      | G3/500   |
| BL   | (0°-30°)    | 2892.3  | 5.0       | B4/5000                 |      |          |
| BM   | (30°-60°)   | 4439.9  | 7.7       | B3/5000                 |      |          |
| BH   | (60°-80°)   | 2285.5  | 3.9       | B3/2500                 |      | G3/2500  |
| BVH  | (80°-90°)   | 385.0   | 0.7       |                         |      | G3/500   |
| UL   | (90°-100°)  | 0.0     | 0.0       |                         | U0/0 |          |
| UH   | (100°-180°) | 0.0     | 0.0       |                         | U0/0 |          |

**BUG Rating: B4-U0-G4**

Type II Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 45°     | 55°     | 56°     | 65°     | 75°     | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 12870.7 | 12870.7 | 12870.7 | 12870.7 | 12870.7 | 12870.7 | 12870.7 | 12870.7 | 12870.7 | 12870.7 | 12870.7 |
| 2.5°  | 14779.1 | 14914.7 | 14854.9 | 14647.5 | 14488.0 | 14262.6 | 14011.4 | 13935.6 | 13670.3 | 13373.2 | 13016.2 |
| 5°    | 17118.3 | 17050.5 | 16952.8 | 16629.8 | 16288.7 | 15891.9 | 15261.7 | 15162.0 | 14571.7 | 13899.7 | 13189.7 |
| 7.5°  | 18450.5 | 18444.5 | 18386.7 | 18197.2 | 17886.1 | 17367.6 | 16607.8 | 16490.2 | 15598.7 | 14517.9 | 13417.1 |
| 10°   | 18257.0 | 18243.1 | 18338.8 | 18536.2 | 18630.0 | 18522.3 | 17882.1 | 17764.5 | 16669.6 | 15201.9 | 13680.3 |
| 12.5° | 17158.2 | 17166.2 | 17319.8 | 17734.6 | 18298.9 | 18976.9 | 18873.3 | 18815.4 | 17780.4 | 15975.7 | 13999.4 |
| 15°   | 16302.7 | 16320.7 | 16442.3 | 16803.3 | 17469.3 | 18699.8 | 19475.5 | 19495.4 | 18855.3 | 16829.2 | 14372.3 |
| 17.5° | 15927.8 | 15965.7 | 16021.5 | 16274.8 | 16885.0 | 18147.4 | 19619.1 | 19726.8 | 19796.6 | 17714.6 | 14731.3 |
| 20°   | 16047.4 | 16083.3 | 16099.3 | 16260.8 | 16761.4 | 17812.3 | 19519.4 | 19712.8 | 20518.5 | 18548.2 | 15090.2 |
| 22.5° | 16583.9 | 16605.8 | 16615.8 | 16657.7 | 17046.5 | 17908.1 | 19453.6 | 19657.0 | 21041.0 | 19296.0 | 15361.4 |
| 25°   | 17473.3 | 17457.4 | 17393.5 | 17339.7 | 17600.9 | 18287.0 | 19605.1 | 19798.6 | 21465.7 | 19974.1 | 15538.9 |
| 27.5° | 18538.2 | 18518.3 | 18394.6 | 18247.1 | 18396.6 | 18877.2 | 20041.9 | 20195.4 | 21846.6 | 20608.2 | 15628.7 |
| 30°   | 19816.5 | 19764.7 | 19531.3 | 19355.9 | 19413.7 | 19762.7 | 20761.8 | 20901.4 | 22434.9 | 21328.1 | 15716.4 |
| 32.5° | 21294.2 | 21238.4 | 20901.4 | 20610.2 | 20610.2 | 20901.4 | 21503.6 | 21619.3 | 22933.5 | 22141.8 | 15858.0 |
| 35°   | 23144.9 | 23075.1 | 22636.3 | 22147.8 | 22010.2 | 22157.7 | 22514.7 | 22596.4 | 23830.9 | 23166.8 | 16115.3 |
| 37.5° | 25326.5 | 25232.8 | 24664.5 | 24010.3 | 23709.2 | 23701.2 | 23958.5 | 24126.0 | 25264.7 | 24512.9 | 16552.0 |
| 40°   | 27514.2 | 27448.4 | 26951.8 | 26437.3 | 25847.0 | 25657.6 | 26054.4 | 26106.3 | 27139.3 | 26184.0 | 17110.4 |
| 42.5° | 29205.3 | 29193.3 | 29101.6 | 29169.4 | 28565.1 | 28182.2 | 28493.3 | 28535.2 | 29428.6 | 27992.8 | 17704.6 |
| 45°   | 30098.7 | 30118.6 | 30563.3 | 31548.5 | 31771.8 | 31492.6 | 31646.2 | 31658.2 | 32045.0 | 29817.5 | 18249.1 |
| 47.5° | 29382.8 | 29486.5 | 30611.2 | 32814.8 | 34643.5 | 35570.8 | 35315.6 | 35463.1 | 34581.7 | 31385.0 | 18675.8 |
| 50°   | 26592.9 | 26720.5 | 28634.9 | 32250.4 | 35983.6 | 39517.4 | 39383.8 | 39349.8 | 36627.7 | 32533.6 | 18907.2 |
| 52.5° | 23136.9 | 23236.6 | 24816.0 | 29317.0 | 35000.5 | 41699.0 | 42925.5 | 42750.0 | 38446.5 | 33393.1 | 18951.0 |
| 55°   | 17874.1 | 18029.7 | 19543.3 | 23461.9 | 31024.0 | 40865.5 | 45529.9 | 45372.4 | 40103.7 | 33843.8 | 18899.2 |
| 57°   | 12707.1 | 12870.7 | 14374.3 | 17906.1 | 26098.3 | 37979.8 | 45789.2 | 45956.7 | 40999.1 | 33919.6 | 18957.0 |
| 57.5° | 11339.1 | 11506.6 | 12996.3 | 16426.3 | 24562.7 | 36936.8 | 45565.8 | 45845.0 | 41160.6 | 33907.6 | 18988.9 |
| 60°   | 5709.4  | 5773.3  | 6722.5  | 9169.4  | 15527.0 | 29861.4 | 42652.3 | 43372.2 | 41306.2 | 33321.3 | 19126.5 |
| 62.5° | 3549.7  | 3503.8  | 3473.9  | 4223.7  | 7554.1  | 19802.6 | 36639.7 | 38025.7 | 38520.3 | 31901.5 | 18793.5 |
| 65°   | 3120.9  | 3035.2  | 2706.1  | 2646.3  | 3336.3  | 9618.1  | 27592.0 | 29317.0 | 32567.5 | 29663.9 | 17999.8 |
| 67.5° | 2931.5  | 2847.7  | 2476.8  | 2253.5  | 2255.5  | 3812.9  | 17130.3 | 19072.7 | 25370.4 | 25880.9 | 16127.2 |
| 70°   | 2736.1  | 2660.3  | 2313.3  | 2050.1  | 1920.4  | 2111.9  | 7881.1  | 9354.9  | 16538.0 | 20343.0 | 13478.9 |
| 72.5° | 2484.8  | 2432.9  | 2103.9  | 1832.7  | 1695.1  | 1581.4  | 3017.2  | 3563.7  | 9574.2  | 13662.4 | 9360.8  |
| 75°   | 2221.6  | 2173.7  | 1892.5  | 1633.3  | 1465.7  | 1244.4  | 1699.1  | 1830.7  | 4863.9  | 6989.7  | 4608.6  |
| 77.5° | 1932.4  | 1904.5  | 1683.1  | 1443.8  | 1310.2  | 1031.0  | 1202.5  | 1266.3  | 2085.9  | 2997.3  | 2311.3  |
| 80°   | 1537.5  | 1591.4  | 1471.7  | 1286.3  | 1162.6  | 825.6   | 851.5   | 893.4   | 1214.5  | 1463.8  | 1312.2  |
| 82.5° | 1001.1  | 1094.8  | 1152.7  | 1045.0  | 957.2   | 650.1   | 612.2   | 630.2   | 791.7   | 893.4   | 570.3   |
| 85°   | 416.8   | 468.6   | 757.8   | 684.0   | 636.2   | 474.6   | 410.8   | 418.8   | 490.6   | 508.5   | 233.3   |
| 87.5° | 185.5   | 197.4   | 333.0   | 313.1   | 269.2   | 163.5   | 175.5   | 191.4   | 261.2   | 247.3   | 89.7    |
| 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°    | 12870.7 | 12870.7 | 12870.7 | 12870.7 | 12870.7 | 12870.7 | 12870.7 | 12870.7 | 12870.7 | 12870.7 | 12870.7 |
| 2.5°  | 12882.6 | 12715.1 | 12427.9 | 12110.9 | 11851.6 | 11644.2 | 11434.8 | 11291.2 | 11123.7 | 11034.0 | 10988.1 |
| 5°    | 12892.6 | 12563.6 | 11959.3 | 11339.1 | 10784.7 | 10278.2 | 9795.6  | 9424.7  | 9077.7  | 8890.2  | 8838.4  |
| 7.5°  | 12934.5 | 12439.9 | 11462.7 | 10441.7 | 9456.6  | 8557.2  | 7863.2  | 7428.5  | 7115.4  | 6975.8  | 6935.9  |
| 10°   | 12968.4 | 12294.3 | 10848.5 | 9336.9  | 7996.8  | 7085.4  | 6547.0  | 6303.7  | 6196.0  | 6178.1  | 6160.1  |
| 12.5° | 13048.1 | 12144.8 | 10202.4 | 8184.3  | 6862.1  | 6231.9  | 6044.5  | 6028.5  | 6058.4  | 6102.3  | 6102.3  |
| 15°   | 13173.8 | 11997.2 | 9464.5  | 7195.1  | 6140.2  | 5918.8  | 5956.7  | 6044.5  | 6126.2  | 6194.0  | 6204.0  |
| 17.5° | 13265.5 | 11815.7 | 8670.8  | 6403.4  | 5755.3  | 5815.1  | 5950.7  | 6074.4  | 6158.1  | 6223.9  | 6229.9  |
| 20°   | 13331.3 | 11534.5 | 7823.3  | 5799.2  | 5533.9  | 5719.4  | 5888.9  | 5998.6  | 6056.4  | 6122.2  | 6132.2  |
| 22.5° | 13297.4 | 11157.6 | 7071.5  | 5366.4  | 5354.5  | 5579.8  | 5741.3  | 5873.0  | 5829.1  | 5765.3  | 5807.2  |
| 25°   | 13133.9 | 10639.1 | 6297.7  | 5043.4  | 5165.0  | 5392.4  | 5591.8  | 5504.0  | 5356.5  | 5328.5  | 5344.5  |
| 27.5° | 12842.7 | 9977.1  | 5581.8  | 4744.2  | 4945.7  | 5218.9  | 5206.9  | 5119.1  | 5067.3  | 5031.4  | 5053.3  |
| 30°   | 12529.7 | 9259.1  | 4955.6  | 4483.0  | 4702.4  | 4927.7  | 4881.8  | 4879.8  | 4828.0  | 4770.2  | 4798.1  |
| 32.5° | 12220.5 | 8537.2  | 4459.1  | 4267.6  | 4518.9  | 4548.8  | 4648.5  | 4678.4  | 4576.7  | 4455.1  | 4447.1  |
| 35°   | 11951.3 | 7855.2  | 4082.2  | 4072.2  | 4297.5  | 4301.5  | 4447.1  | 4405.2  | 4152.0  | 4026.3  | 4026.3  |
| 37.5° | 11749.9 | 7175.2  | 3795.0  | 3896.7  | 4006.4  | 4110.1  | 4183.9  | 4010.4  | 3968.5  | 3898.7  | 3896.7  |
| 40°   | 11662.2 | 6576.9  | 3615.5  | 3763.1  | 3801.0  | 3932.6  | 3743.1  | 3810.9  | 3830.9  | 3795.0  | 3795.0  |
| 42.5° | 11570.4 | 6056.4  | 3460.0  | 3661.4  | 3655.4  | 3637.4  | 3541.7  | 3629.5  | 3709.2  | 3711.2  | 3705.3  |
| 45°   | 11478.7 | 5607.7  | 3322.4  | 3444.0  | 3527.8  | 3334.3  | 3352.3  | 3446.0  | 3557.7  | 3597.6  | 3597.6  |
| 47.5° | 11377.0 | 5252.8  | 3196.7  | 3214.7  | 3344.3  | 3214.7  | 3200.7  | 3272.5  | 3404.1  | 3467.9  | 3481.9  |
| 50°   | 11153.6 | 4933.7  | 3053.1  | 3013.3  | 3049.2  | 3093.0  | 3105.0  | 3138.9  | 3284.5  | 3386.2  | 3410.1  |
| 52.5° | 10844.5 | 4648.5  | 2869.7  | 2827.8  | 2827.8  | 2993.3  | 3049.2  | 3059.1  | 3182.8  | 3304.4  | 3328.3  |
| 55°   | 10587.3 | 4467.0  | 2680.2  | 2672.2  | 2664.3  | 2887.6  | 2983.3  | 2999.3  | 3085.1  | 3180.8  | 3192.7  |
| 57°   | 10605.2 | 4453.1  | 2534.6  | 2542.6  | 2540.6  | 2779.9  | 2921.5  | 2955.4  | 2999.3  | 3081.1  | 3095.0  |
| 57.5° | 10615.2 | 4463.1  | 2502.7  | 2506.7  | 2504.7  | 2750.0  | 2903.6  | 2941.5  | 2975.4  | 3061.1  | 3075.1  |
| 60°   | 10764.8 | 4489.0  | 2373.1  | 2329.2  | 2339.2  | 2590.5  | 2801.9  | 2849.7  | 2871.7  | 2985.3  | 3003.3  |
| 62.5° | 10543.4 | 4373.3  | 2269.4  | 2163.7  | 2163.7  | 2423.0  | 2660.3  | 2736.1  | 2770.0  | 2923.5  | 2953.4  |
| 65°   | 9901.3  | 4048.3  | 2147.8  | 1976.3  | 1996.2  | 2255.5  | 2490.8  | 2614.4  | 2666.3  | 2857.7  | 2889.6  |
| 67.5° | 8910.2  | 3671.3  | 2018.1  | 1808.8  | 1828.7  | 2080.0  | 2315.3  | 2448.9  | 2530.7  | 2785.9  | 2811.8  |
| 70°   | 7619.9  | 3210.7  | 1842.7  | 1631.3  | 1655.2  | 1888.5  | 2107.9  | 2259.4  | 2381.1  | 2718.1  | 2726.1  |
| 72.5° | 5617.7  | 2632.4  | 1597.4  | 1435.8  | 1461.8  | 1665.2  | 1898.5  | 2074.0  | 2237.5  | 2548.6  | 2544.6  |
| 75°   | 3340.3  | 2058.0  | 1326.2  | 1238.4  | 1256.4  | 1445.8  | 1709.0  | 1922.4  | 2167.7  | 2482.8  | 2520.7  |
| 77.5° | 2026.1  | 1549.5  | 1080.9  | 1037.0  | 1058.9  | 1252.4  | 1573.4  | 1800.8  | 2137.8  | 2341.2  | 2329.2  |
| 80°   | 1224.4  | 1106.8  | 863.5   | 835.6   | 857.5   | 1070.9  | 1455.8  | 1709.0  | 1868.6  | 2000.2  | 2000.2  |
| 82.5° | 640.1   | 676.0   | 634.2   | 612.2   | 642.1   | 869.5   | 1324.2  | 1491.7  | 1651.2  | 1417.9  | 1324.2  |
| 85°   | 261.2   | 353.0   | 384.9   | 382.9   | 400.8   | 602.3   | 1142.7  | 1276.3  | 1064.9  | 1011.1  | 1035.0  |
| 87.5° | 87.7    | 149.6   | 187.5   | 161.5   | 169.5   | 378.9   | 791.7   | 616.2   | 731.9   | 510.5   | 484.6   |
| 90°   | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |

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:  $4\pi$   
 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   | CRI (Ra): | 71.7 |      |       |
| CIE u':                   | 0.2052 | R1:       | 70.6 | R9:  | -27.1 |
| CIE v':                   | 0.4804 | R2:       | 74.6 | R10: | 40.8  |
| Duv:                      | 0.0025 | R3:       | 78.3 | R11: | 74.6  |
| CIE x:                    | 0.3330 | R4:       | 73.8 | R12: | 50.4  |
| CIE y:                    | 0.3466 | R5:       | 72.4 | R13: | 70.0  |
| CIE z:                    | 0.3204 | R6:       | 67.5 | R14: | 87.8  |
| Peak Wavelength (nm):     | 442    | R7:       | 77.5 |      |       |
| Dominant Wavelength (nm): | 554    | R8:       | 58.9 |      |       |
| Purity:                   | 4.1    |           |      |      |       |
| 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<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       | 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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**Scotopic Flux vs. Wavelength**



**Scotopic Lumens: 13759.3**

**S/P: 1.85**

| 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       | 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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**Melanopic Flux vs. Wavelength**



**Melanopic Lumens: 5527.6 M/P: 0.74**

| 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       | 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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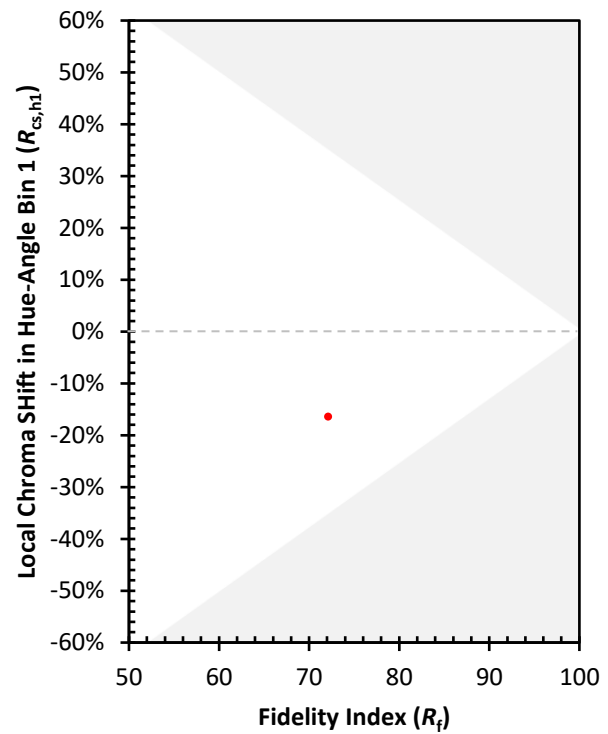
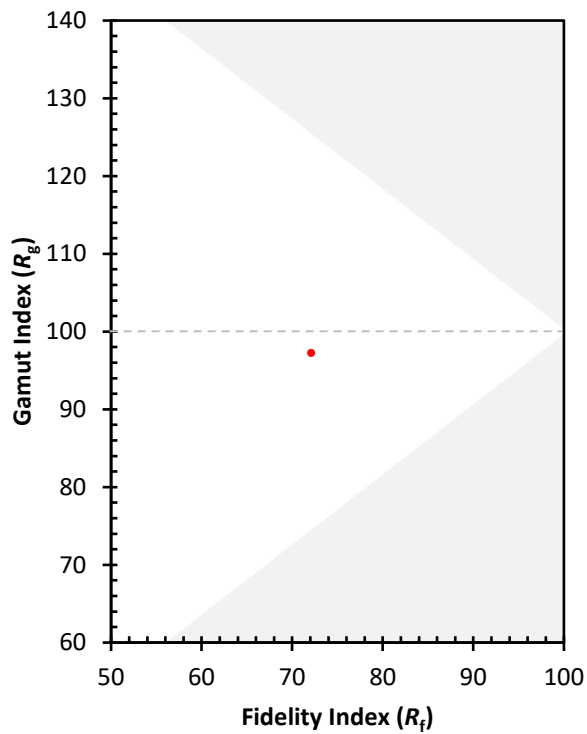
Color Rendition by Hue-Angle Bin



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**Measure Comparisons**



(END OF REPORT)