

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: P318611

Luminaire Tested: **GLEON-SA7C-722-U-T3**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P318611  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-14)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: McGRAW-EDISON  
Catalog Number: GLEON-SA7C-722-U-T3  
Description: GALLEON AREA AND ROADWAY LUMINAIRE  
(7) 70 CRI, 2200K, 1050mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III OPTICS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 36785 lumens  
Efficiency: N/A  
Efficacy: 94.1 lumens/watt  
Luminous Opening: Rectangular (W 2' x L: 1' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B3 - U0 - G5

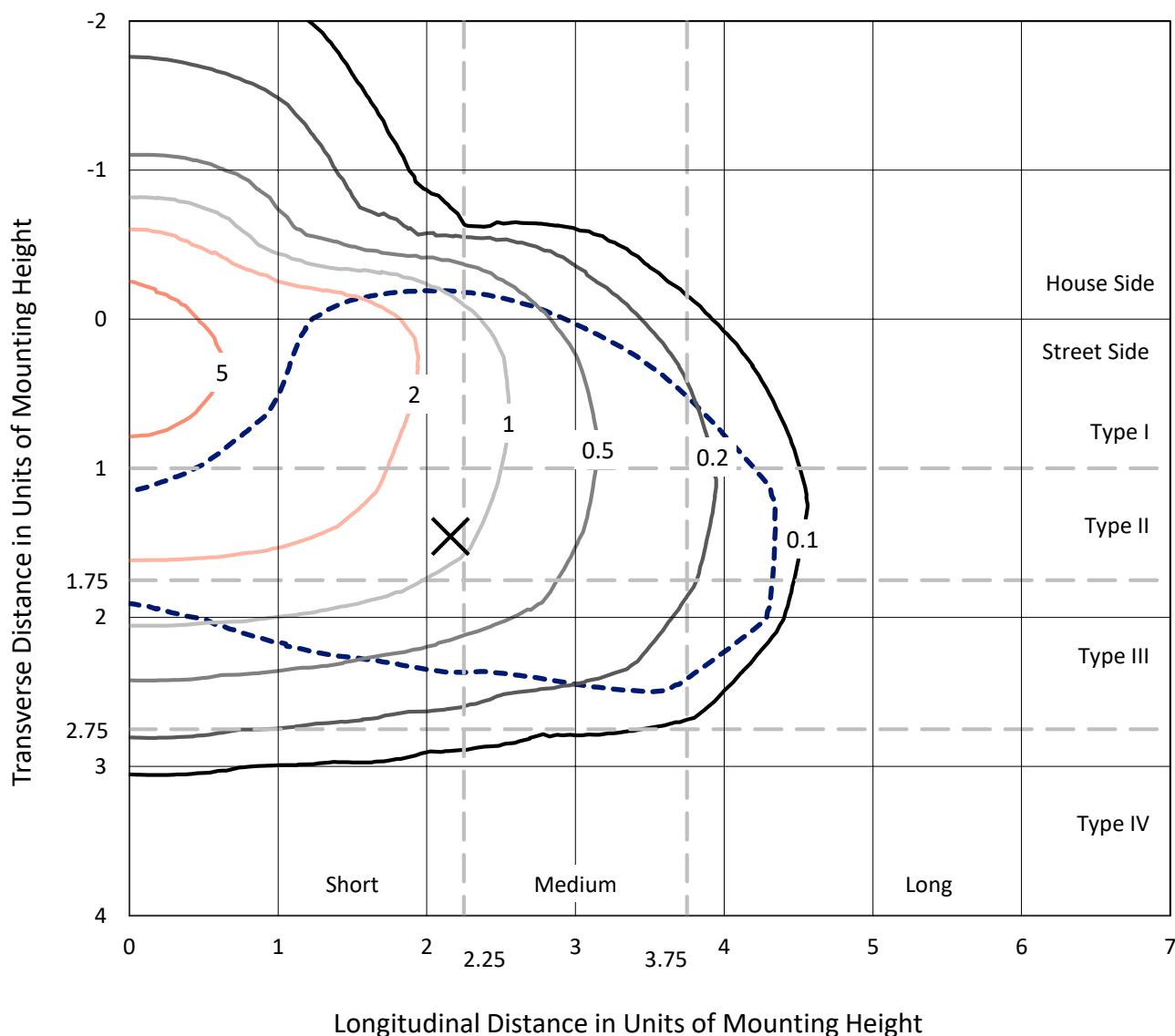
Input Watts (W): 391  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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## Iso-Footcandle Lines of Horizontal Illumination

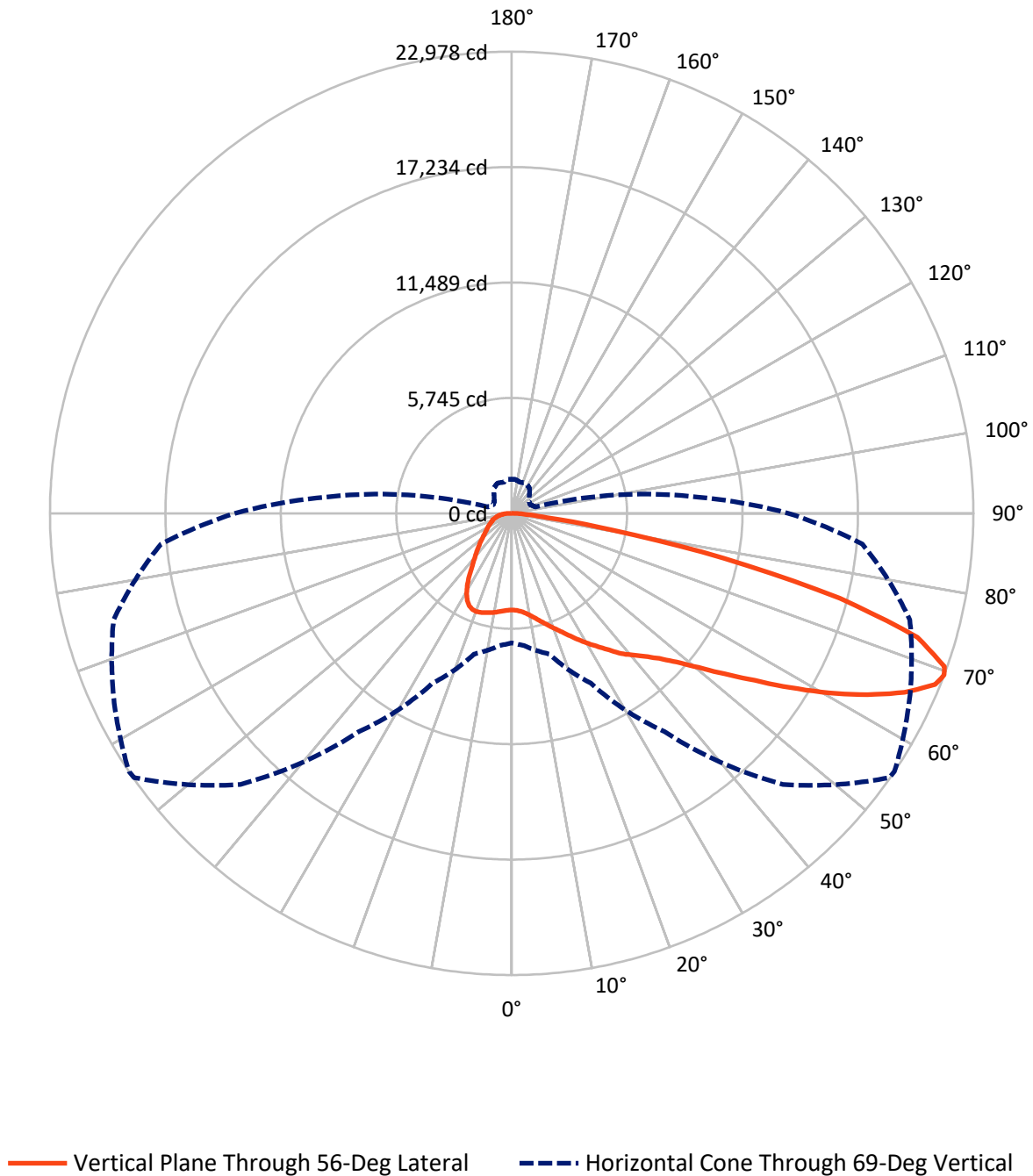
✕ Max cd  
 - - - 1/2 Max cd



Based on 30 foot mounting height. Maximum calculated value = 5.8 fc  
 Type III - 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    | 8191.9   | 0.0    | 8191.9  |
|                    | % Fixture | 22.3     | 0.0    | 22.3    |
| <b>Street Side</b> | Lumens    | 28593.1  | 0.0    | 28593.1 |
|                    | % Fixture | 77.7     | 0.0    | 77.7    |
| <b>Total</b>       | Lumens    | 36785.0  | 0.0    | 36785.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 472.3   | 1.3       |
| 10°-20°   | 1518.8  | 4.1       |
| 20°-30°   | 2651.3  | 7.2       |
| 30°-40°   | 3808.5  | 10.4      |
| 40°-50°   | 5270.7  | 14.3      |
| 50°-60°   | 7722.3  | 21.0      |
| 60°-70°   | 9415.0  | 25.6      |
| 70°-80°   | 5205.2  | 14.2      |
| 80°-90°   | 720.9   | 2.0       |
| 90°-100°  | 0.0     | 0.0       |
| 100°-110° | 0.0     | 0.0       |
| 110°-120° | 0.0     | 0.0       |
| 120°-130° | 0.0     | 0.0       |
| 130°-140° | 0.0     | 0.0       |
| 140°-150° | 0.0     | 0.0       |
| 150°-160° | 0.0     | 0.0       |
| 160°-170° | 0.0     | 0.0       |
| 170°-180° | 0.0     | 0.0       |
| 0°-90°    | 36785.0 | 100.0     |
| 0°-180°   | 36785.0 | 100.0     |

**Coefficient of Utilization**



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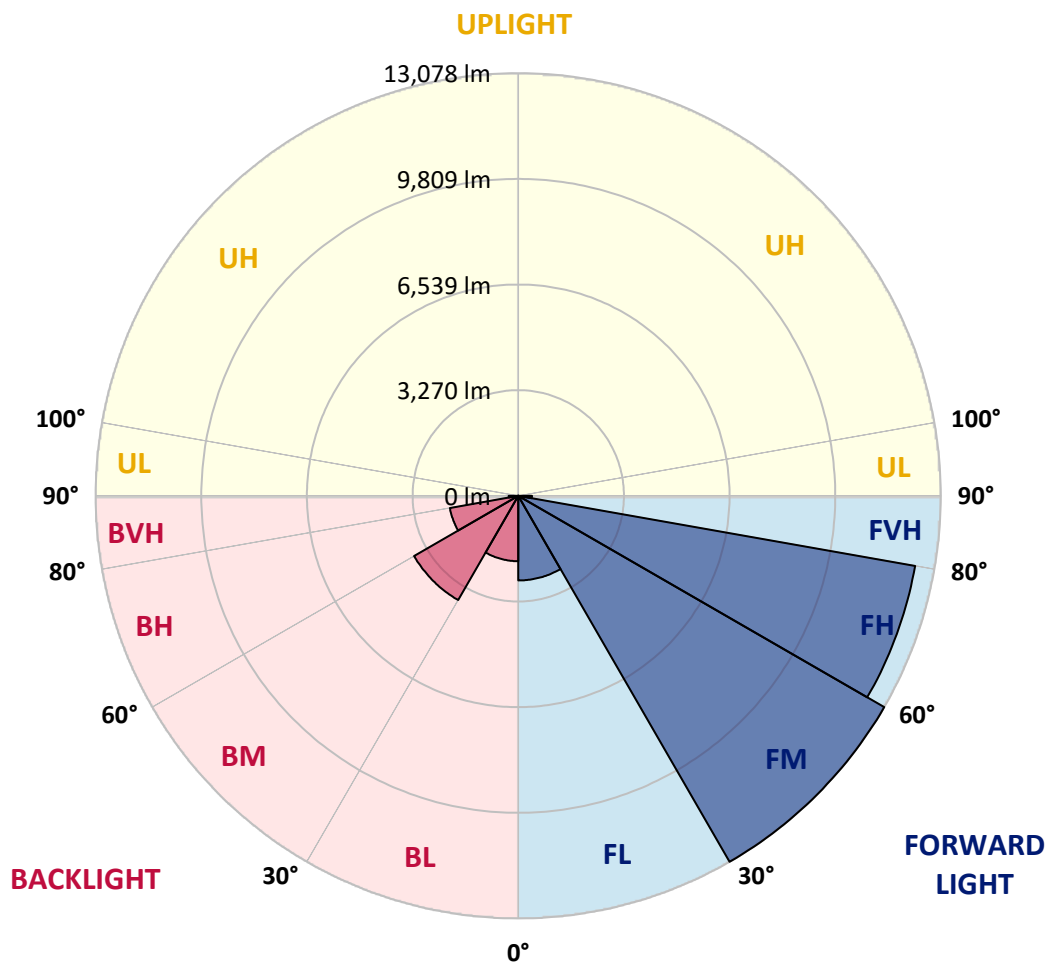
CATALOG NUMBER: GLEON-SA7C-722-U-T3

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

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|---------|-----------|-------------------------|------|---------|
|      |             |         |           | B                       | U    | G       |
| FL   | (0°-30°)    | 2618.0  | 7.1       |                         |      |         |
| FM   | (30°-60°)   | 13078.4 | 35.6      |                         |      |         |
| FH   | (60°-80°)   | 12472.0 | 33.9      |                         |      | G5      |
| FVH  | (80°-90°)   | 424.6   | 1.2       |                         |      | G3/500  |
| BL   | (0°-30°)    | 2024.4  | 5.5       | B3/2500                 |      |         |
| BM   | (30°-60°)   | 3723.1  | 10.1      | B3/5000                 |      |         |
| BH   | (60°-80°)   | 2148.2  | 5.8       | B3/2500                 |      | G3/2500 |
| BVH  | (80°-90°)   | 296.3   | 0.8       |                         |      | G3/500  |
| 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 Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 45°     | 55°     | 56°     | 65°     | 75°     | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 4809.1  | 4809.1  | 4809.1  | 4809.1  | 4809.1  | 4809.1  | 4809.1  | 4809.1  | 4809.1  | 4809.1  | 4809.1  |
| 2.5°  | 4839.5  | 4844.6  | 4840.8  | 4850.9  | 4839.5  | 4847.1  | 4840.8  | 4840.8  | 4837.0  | 4825.6  | 4812.9  |
| 5°    | 4915.5  | 4925.7  | 4919.3  | 4929.5  | 4915.5  | 4918.1  | 4906.7  | 4906.7  | 4895.3  | 4871.2  | 4845.8  |
| 7.5°  | 5034.6  | 5046.1  | 5041.0  | 5051.1  | 5032.1  | 5032.1  | 5016.9  | 5015.6  | 4992.8  | 4953.5  | 4924.4  |
| 10°   | 5176.6  | 5191.8  | 5186.7  | 5201.9  | 5186.7  | 5191.8  | 5176.6  | 5176.6  | 5146.2  | 5090.4  | 5053.7  |
| 12.5° | 5383.1  | 5402.1  | 5388.2  | 5386.9  | 5380.6  | 5390.7  | 5378.1  | 5375.5  | 5347.7  | 5271.6  | 5220.9  |
| 15°   | 5659.4  | 5679.7  | 5650.5  | 5648.0  | 5612.5  | 5608.7  | 5608.7  | 5604.9  | 5587.2  | 5495.9  | 5412.3  |
| 17.5° | 5977.5  | 5983.8  | 5958.5  | 5917.9  | 5872.3  | 5843.1  | 5839.3  | 5849.5  | 5849.5  | 5743.0  | 5610.0  |
| 20°   | 6289.2  | 6300.6  | 6280.3  | 6234.7  | 6176.4  | 6133.3  | 6102.9  | 6123.2  | 6121.9  | 5995.2  | 5806.4  |
| 22.5° | 6628.8  | 6655.4  | 6625.0  | 6566.7  | 6498.3  | 6450.1  | 6396.9  | 6414.6  | 6415.9  | 6260.0  | 5999.0  |
| 25°   | 7068.5  | 7044.5  | 7025.4  | 6943.1  | 6845.5  | 6796.1  | 6746.7  | 6764.4  | 6759.3  | 6545.2  | 6198.0  |
| 27.5° | 7457.6  | 7462.6  | 7437.3  | 7349.9  | 7237.1  | 7128.1  | 7125.6  | 7137.0  | 7118.0  | 6841.7  | 6385.5  |
| 30°   | 7910.0  | 7912.5  | 7877.0  | 7798.4  | 7675.5  | 7534.9  | 7501.9  | 7520.9  | 7480.4  | 7123.0  | 6583.2  |
| 32.5° | 8359.8  | 8372.5  | 8333.2  | 8238.2  | 8139.3  | 7968.3  | 7902.4  | 7915.0  | 7813.7  | 7410.7  | 6787.2  |
| 35°   | 8753.9  | 8771.7  | 8759.0  | 8695.6  | 8587.9  | 8440.9  | 8362.4  | 8354.8  | 8229.3  | 7763.0  | 7057.1  |
| 37.5° | 9155.6  | 9172.1  | 9158.2  | 9104.9  | 9061.9  | 8906.0  | 8864.2  | 8864.2  | 8646.2  | 8122.9  | 7400.5  |
| 40°   | 9568.7  | 9594.1  | 9577.6  | 9504.1  | 9467.4  | 9396.4  | 9296.3  | 9272.2  | 9036.5  | 8555.0  | 7960.7  |
| 42.5° | 9952.7  | 9985.7  | 10051.6 | 10008.5 | 9933.7  | 9943.8  | 9742.4  | 9729.7  | 9557.3  | 9193.7  | 8664.0  |
| 45°   | 10497.6 | 10545.8 | 10657.3 | 10624.3 | 10609.1 | 10553.4 | 10313.9 | 10302.5 | 10236.6 | 10052.8 | 9537.1  |
| 47.5° | 11091.9 | 11157.8 | 11359.3 | 11365.7 | 11529.1 | 11424.0 | 11098.3 | 11059.0 | 11074.2 | 11081.8 | 10602.8 |
| 50°   | 11639.4 | 11711.6 | 12042.4 | 12198.2 | 12583.5 | 12606.3 | 12085.4 | 12050.0 | 12109.5 | 12284.4 | 11844.7 |
| 52.5° | 12076.6 | 12167.8 | 12580.9 | 13062.5 | 13722.7 | 13910.2 | 13300.7 | 13274.1 | 13318.4 | 13620.0 | 13248.7 |
| 55°   | 12397.2 | 12496.0 | 12945.9 | 13822.8 | 14877.1 | 15207.9 | 14699.7 | 14674.4 | 14702.2 | 15086.2 | 14775.7 |
| 57.5° | 12471.9 | 12496.0 | 13148.6 | 14334.7 | 15851.6 | 16646.2 | 16411.7 | 16361.0 | 16224.2 | 16558.7 | 16461.1 |
| 60°   | 12120.9 | 12217.2 | 12981.4 | 14514.7 | 16605.6 | 18064.2 | 18201.0 | 18137.7 | 17753.7 | 18027.4 | 17948.8 |
| 62.5° | 11408.7 | 11581.1 | 12356.6 | 14241.0 | 16900.9 | 19222.4 | 19956.1 | 19880.1 | 19218.6 | 19396.0 | 19018.4 |
| 65°   | 10245.4 | 10318.9 | 11133.8 | 13296.9 | 16525.8 | 19963.7 | 21521.1 | 21483.1 | 20650.6 | 20373.0 | 19216.1 |
| 67.5° | 8164.7  | 8302.8  | 8994.7  | 11323.8 | 14991.2 | 19876.3 | 22731.3 | 22727.5 | 21585.8 | 20735.5 | 18515.3 |
| 69°   | 6450.1  | 6593.3  | 7252.3  | 9328.0  | 13265.2 | 19076.7 | 22934.1 | 22978.4 | 21849.3 | 20515.0 | 17514.2 |
| 70°   | 5142.4  | 5308.4  | 5760.8  | 7856.7  | 11733.2 | 18022.3 | 22765.5 | 22845.4 | 21798.7 | 20151.3 | 16590.4 |
| 72.5° | 2188.5  | 2322.8  | 2644.7  | 4050.0  | 7150.9  | 13457.8 | 20815.3 | 21116.9 | 20623.9 | 18443.1 | 13711.3 |
| 75°   | 955.5   | 997.3   | 1143.0  | 1651.2  | 3174.4  | 7324.5  | 16306.5 | 16864.1 | 17634.6 | 15589.3 | 10213.8 |
| 77.5° | 699.5   | 717.2   | 797.1   | 969.4   | 1424.4  | 2766.3  | 10486.2 | 10810.6 | 12717.8 | 11344.1 | 6265.1  |
| 80°   | 541.1   | 553.8   | 615.9   | 712.2   | 930.1   | 1119.0  | 4782.5  | 5061.3  | 7150.9  | 5826.7  | 2609.2  |
| 82.5° | 430.9   | 439.7   | 482.8   | 524.6   | 642.5   | 678.0   | 1587.8  | 1761.4  | 2639.6  | 1609.4  | 690.6   |
| 85°   | 400.4   | 410.6   | 425.8   | 382.7   | 411.8   | 397.9   | 686.8   | 718.5   | 797.1   | 632.3   | 288.9   |
| 87.5° | 181.2   | 214.2   | 422.0   | 297.8   | 219.2   | 174.9   | 281.3   | 294.0   | 330.7   | 332.0   | 128.0   |
| 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: P318611

CATALOG NUMBER: GLEON-SA7C-722-U-T3

**CANDELA DISTRIBUTION (continued):**

|       | 90°     | 95°     | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 4809.1  | 4809.1  | 4809.1 | 4809.1 | 4809.1 | 4809.1 | 4809.1 | 4809.1 | 4809.1 | 4809.1 | 4809.1 |
| 2.5°  | 4820.5  | 4816.7  | 4823.0 | 4807.8 | 4826.8 | 4825.6 | 4819.2 | 4821.8 | 4834.4 | 4833.2 | 4834.4 |
| 5°    | 4849.6  | 4847.1  | 4854.7 | 4843.3 | 4866.1 | 4873.7 | 4875.0 | 4886.4 | 4900.3 | 4904.1 | 4904.1 |
| 7.5°  | 4923.1  | 4923.1  | 4926.9 | 4911.7 | 4926.9 | 4925.7 | 4919.3 | 4930.7 | 4944.7 | 4945.9 | 4944.7 |
| 10°   | 5049.9  | 5051.1  | 5044.8 | 5005.5 | 4992.8 | 4958.6 | 4926.9 | 4928.2 | 4945.9 | 4959.9 | 4963.7 |
| 12.5° | 5209.5  | 5204.5  | 5176.6 | 5104.3 | 5051.1 | 4981.4 | 4948.5 | 4947.2 | 4965.0 | 4976.4 | 4980.2 |
| 15°   | 5392.0  | 5378.1  | 5305.8 | 5188.0 | 5094.2 | 5025.8 | 4972.6 | 4959.9 | 4949.7 | 4937.1 | 4938.3 |
| 17.5° | 5564.3  | 5532.7  | 5412.3 | 5248.8 | 5150.0 | 5058.7 | 4956.1 | 4873.7 | 4816.7 | 4783.7 | 4773.6 |
| 20°   | 5739.2  | 5677.1  | 5503.5 | 5305.8 | 5180.4 | 5014.4 | 4816.7 | 4649.4 | 4545.5 | 4497.3 | 4488.5 |
| 22.5° | 5898.9  | 5798.8  | 5588.4 | 5365.4 | 5156.3 | 4864.8 | 4554.4 | 4311.1 | 4166.6 | 4102.0 | 4107.0 |
| 25°   | 6054.8  | 5915.4  | 5677.1 | 5407.2 | 5034.6 | 4601.3 | 4189.4 | 3890.4 | 3723.1 | 3650.8 | 3648.3 |
| 27.5° | 6191.6  | 6033.2  | 5773.4 | 5373.0 | 4807.8 | 4226.2 | 3757.3 | 3465.8 | 3326.4 | 3264.3 | 3254.2 |
| 30°   | 6348.8  | 6181.5  | 5901.4 | 5242.5 | 4475.8 | 3792.8 | 3335.3 | 3130.0 | 3031.2 | 2969.1 | 2957.7 |
| 32.5° | 6540.1  | 6383.0  | 6006.6 | 5005.5 | 4051.3 | 3340.4 | 3005.8 | 2862.6 | 2772.7 | 2703.0 | 2690.3 |
| 35°   | 6818.9  | 6649.1  | 6033.2 | 4665.9 | 3585.0 | 2983.0 | 2763.8 | 2616.8 | 2495.1 | 2405.2 | 2396.3 |
| 37.5° | 7168.6  | 6982.4  | 5972.4 | 4226.2 | 3132.6 | 2751.1 | 2562.3 | 2381.1 | 2222.7 | 2096.0 | 2075.7 |
| 40°   | 7673.0  | 7391.7  | 5803.8 | 3719.3 | 2799.3 | 2572.4 | 2365.9 | 2159.3 | 1962.9 | 1814.7 | 1785.5 |
| 42.5° | 8278.7  | 7871.9  | 5545.3 | 3214.9 | 2554.7 | 2391.2 | 2170.7 | 1914.8 | 1727.2 | 1622.0 | 1606.8 |
| 45°   | 9049.2  | 8371.2  | 5186.7 | 2773.9 | 2313.9 | 2210.0 | 1960.4 | 1724.7 | 1608.1 | 1530.8 | 1518.1 |
| 47.5° | 9928.6  | 8931.3  | 4810.4 | 2415.3 | 2109.9 | 2040.2 | 1791.8 | 1639.8 | 1547.3 | 1486.4 | 1475.0 |
| 50°   | 11009.6 | 9563.7  | 4411.2 | 2121.3 | 1904.6 | 1836.2 | 1712.0 | 1592.9 | 1519.4 | 1472.5 | 1461.1 |
| 52.5° | 12228.6 | 10277.1 | 4123.5 | 1889.4 | 1734.8 | 1685.4 | 1670.2 | 1567.5 | 1508.0 | 1472.5 | 1461.1 |
| 55°   | 13541.5 | 11003.2 | 3813.1 | 1694.3 | 1587.8 | 1601.8 | 1642.3 | 1570.1 | 1529.5 | 1486.4 | 1470.0 |
| 57.5° | 14855.6 | 11753.4 | 3467.1 | 1529.5 | 1471.2 | 1539.7 | 1623.3 | 1575.1 | 1540.9 | 1499.1 | 1483.9 |
| 60°   | 15894.7 | 12228.6 | 2931.1 | 1391.4 | 1378.7 | 1471.2 | 1577.7 | 1537.1 | 1492.8 | 1494.0 | 1491.5 |
| 62.5° | 16380.0 | 12203.3 | 2339.3 | 1268.5 | 1286.2 | 1378.7 | 1504.2 | 1477.6 | 1440.8 | 1490.2 | 1494.0 |
| 65°   | 16107.6 | 11595.0 | 1821.0 | 1157.0 | 1187.4 | 1282.4 | 1428.2 | 1448.4 | 1461.1 | 1556.1 | 1568.8 |
| 67.5° | 14964.6 | 10411.4 | 1410.4 | 1059.4 | 1097.4 | 1216.5 | 1435.8 | 1577.7 | 1594.2 | 1694.3 | 1693.0 |
| 69°   | 13782.2 | 9301.4  | 1225.4 | 1008.7 | 1053.1 | 1233.0 | 1534.6 | 1660.1 | 1598.0 | 1704.4 | 1689.2 |
| 70°   | 12791.3 | 8423.2  | 1126.6 | 974.5  | 1032.8 | 1262.1 | 1600.5 | 1658.8 | 1579.0 | 1670.2 | 1644.8 |
| 72.5° | 9851.3  | 6059.8  | 955.5  | 911.1  | 964.4  | 1207.7 | 1619.5 | 1622.0 | 1534.6 | 1552.3 | 1509.3 |
| 75°   | 6756.8  | 3829.5  | 833.8  | 825.0  | 860.4  | 1088.5 | 1558.7 | 1549.8 | 1419.3 | 1393.9 | 1358.5 |
| 77.5° | 3725.6  | 1945.2  | 708.4  | 742.6  | 766.7  | 964.4  | 1416.7 | 1404.1 | 1296.4 | 1243.1 | 1230.5 |
| 80°   | 1437.0  | 851.6   | 598.1  | 660.2  | 675.4  | 835.1  | 1241.9 | 1230.5 | 1140.5 | 1072.1 | 1053.1 |
| 82.5° | 542.4   | 446.1   | 494.2  | 571.5  | 566.4  | 689.4  | 1051.8 | 1045.5 | 958.0  | 857.9  | 827.5  |
| 85°   | 250.9   | 267.4   | 391.6  | 471.4  | 434.7  | 510.7  | 841.4  | 852.8  | 746.4  | 627.3  | 627.3  |
| 87.5° | 106.4   | 149.5   | 277.5  | 356.1  | 292.7  | 344.7  | 617.1  | 589.3  | 541.1  | 375.1  | 352.3  |
| 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: SP1-1908-441-10-R4

Test Date: 10/25/2019

Luminaire Tested: SA1C-722-U-5WQ

Data in this report applies to families of products SA1C-722-U-5WQ.

### Test Information

Test Method: LM-79-2008 Report  
 Number: SP1-1908-441-10-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-722-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):                  | 2237    | CRI (Ra): | 72.0 |      |       |
| CIE u':                   | 0.2876  | R1:       | 68.9 | R9:  | -17.4 |
| CIE v':                   | 0.5346  | R2:       | 83.0 | R10: | 61.3  |
| Duv:                      | -0.0006 | R3:       | 95.2 | R11: | 59.8  |
| CIE x:                    | 0.5005  | R4:       | 66.2 | R12: | 50.5  |
| CIE y:                    | 0.4134  | R5:       | 65.9 | R13: | 71.1  |
| CIE z:                    | 0.0860  | R6:       | 76.3 | R14: | 96.9  |
| Peak Wavelength (nm):     | 603     | R7:       | 76.7 |      |       |
| Dominant Wavelength (nm): | 587     | R8:       | 43.8 |      |       |
| Purity:                   | 74.5    |           |      |      |       |
| Rf:                       | 69.8    |           |      |      |       |
| Rg:                       | 99.2    |           |      |      |       |



### Test Conditions

Stabilization Time: 71M  
 Operation Time: 12H  
 Room Temperature (°C) / RH%: 24.7/41%  
 Sphere Temperature (°C): 25.6

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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 2200K 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       | 1768             | NR               | 490       | 5206             | NR               | 620       | 130919           | NR               | 750       | 8553             | NR               | 880       | 2713             | NR               |
| 365       | 1569             | NR               | 495       | 7286             | NR               | 625       | 125335           | NR               | 755       | 7696             | NR               | 885       | 2316             | NR               |
| 370       | 1594             | NR               | 500       | 10654            | NR               | 630       | 118388           | NR               | 760       | 6978             | NR               | 890       | 2539             | NR               |
| 375       | 1744             | NR               | 505       | 15189            | NR               | 635       | 111855           | NR               | 765       | 6377             | NR               | 895       | 1933             | NR               |
| 380       | 1659             | NR               | 510       | 20541            | NR               | 640       | 104062           | NR               | 770       | 5600             | NR               | 900       | 2216             | NR               |
| 385       | 1504             | NR               | 515       | 26492            | NR               | 645       | 96365            | NR               | 775       | 5000             | NR               | 905       | 2067             | NR               |
| 390       | 1541             | NR               | 520       | 32294            | NR               | 650       | 88651            | NR               | 780       | 4709             | NR               | 910       | 1959             | NR               |
| 395       | 1355             | NR               | 525       | 38123            | NR               | 655       | 81152            | NR               | 785       | 4305             | NR               | 915       | 1874             | NR               |
| 400       | 1243             | NR               | 530       | 43232            | NR               | 660       | 73523            | NR               | 790       | 4040             | NR               | 920       | 1484             | NR               |
| 405       | 1417             | NR               | 535       | 48012            | NR               | 665       | 66123            | NR               | 795       | 3642             | NR               | 925       | 1914             | NR               |
| 410       | 2147             | NR               | 540       | 52623            | NR               | 670       | 58677            | NR               | 800       | 3594             | NR               | 930       | 1948             | NR               |
| 415       | 3837             | NR               | 545       | 57516            | NR               | 675       | 52349            | NR               | 805       | 3190             | NR               | 935       | 2079             | NR               |
| 420       | 7159             | NR               | 550       | 62613            | NR               | 680       | 46159            | NR               | 810       | 3241             | NR               | 940       | 2263             | NR               |
| 425       | 12599            | NR               | 555       | 68554            | NR               | 685       | 40525            | NR               | 815       | 2732             | NR               | 945       | 1688             | NR               |
| 430       | 19019            | NR               | 560       | 75325            | NR               | 690       | 35615            | NR               | 820       | 2612             | NR               | 950       | 1560             | NR               |
| 435       | 24875            | NR               | 565       | 82533            | NR               | 695       | 31158            | NR               | 825       | 2966             | NR               | 955       | 2826             | NR               |
| 440       | 29103            | NR               | 570       | 90909            | NR               | 700       | 27409            | NR               | 830       | 2574             | NR               | 960       | 1477             | NR               |
| 445       | 29901            | NR               | 575       | 99621            | NR               | 705       | 24204            | NR               | 835       | 2633             | NR               | 965       | 1568             | NR               |
| 450       | 24862            | NR               | 580       | 108484           | NR               | 710       | 21558            | NR               | 840       | 2526             | NR               | 970       | 2030             | NR               |
| 455       | 15942            | NR               | 585       | 116679           | NR               | 715       | 19222            | NR               | 845       | 2631             | NR               | 975       | 1986             | NR               |
| 460       | 9916             | NR               | 590       | 123752           | NR               | 720       | 17310            | NR               | 850       | 2079             | NR               | 980       | 2540             | NR               |
| 465       | 7051             | NR               | 595       | 129324           | NR               | 725       | 15280            | NR               | 855       | 2309             | NR               | 985       | 1139             | NR               |
| 470       | 5227             | NR               | 600       | 134082           | NR               | 730       | 13282            | NR               | 860       | 2528             | NR               | 990       | 2018             | NR               |
| 475       | 4257             | NR               | 605       | 135698           | NR               | 735       | 11753            | NR               | 865       | 2121             | NR               | 995       | 3445             | NR               |
| 480       | 4052             | NR               | 610       | 135144           | NR               | 740       | 10654            | NR               | 870       | 2751             | NR               | 1000      | 3704             | NR               |
| 485       | 4298             | NR               | 615       | 134180           | NR               | 745       | 9451             | NR               | 875       | 2317             | NR               |           |                  |                  |

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**Scotopic Flux vs. Wavelength**



**Scotopic Lumens: 4696.9**

**S/P: 0.85**

| 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       | 1768             | NR               | 490       | 5206             | NR               | 620       | 130919           | NR               | 750       | 8553             | NR               | 880       | 2713             | NR               |
| 365       | 1569             | NR               | 495       | 7286             | NR               | 625       | 125335           | NR               | 755       | 7696             | NR               | 885       | 2316             | NR               |
| 370       | 1594             | NR               | 500       | 10654            | NR               | 630       | 118388           | NR               | 760       | 6978             | NR               | 890       | 2539             | NR               |
| 375       | 1744             | NR               | 505       | 15189            | NR               | 635       | 111855           | NR               | 765       | 6377             | NR               | 895       | 1933             | NR               |
| 380       | 1659             | NR               | 510       | 20541            | NR               | 640       | 104062           | NR               | 770       | 5600             | NR               | 900       | 2216             | NR               |
| 385       | 1504             | NR               | 515       | 26492            | NR               | 645       | 96365            | NR               | 775       | 5000             | NR               | 905       | 2067             | NR               |
| 390       | 1541             | NR               | 520       | 32294            | NR               | 650       | 88651            | NR               | 780       | 4709             | NR               | 910       | 1959             | NR               |
| 395       | 1355             | NR               | 525       | 38123            | NR               | 655       | 81152            | NR               | 785       | 4305             | NR               | 915       | 1874             | NR               |
| 400       | 1243             | NR               | 530       | 43232            | NR               | 660       | 73523            | NR               | 790       | 4040             | NR               | 920       | 1484             | NR               |
| 405       | 1417             | NR               | 535       | 48012            | NR               | 665       | 66123            | NR               | 795       | 3642             | NR               | 925       | 1914             | NR               |
| 410       | 2147             | NR               | 540       | 52623            | NR               | 670       | 58677            | NR               | 800       | 3594             | NR               | 930       | 1948             | NR               |
| 415       | 3837             | NR               | 545       | 57516            | NR               | 675       | 52349            | NR               | 805       | 3190             | NR               | 935       | 2079             | NR               |
| 420       | 7159             | NR               | 550       | 62613            | NR               | 680       | 46159            | NR               | 810       | 3241             | NR               | 940       | 2263             | NR               |
| 425       | 12599            | NR               | 555       | 68554            | NR               | 685       | 40525            | NR               | 815       | 2732             | NR               | 945       | 1688             | NR               |
| 430       | 19019            | NR               | 560       | 75325            | NR               | 690       | 35615            | NR               | 820       | 2612             | NR               | 950       | 1560             | NR               |
| 435       | 24875            | NR               | 565       | 82533            | NR               | 695       | 31158            | NR               | 825       | 2966             | NR               | 955       | 2826             | NR               |
| 440       | 29103            | NR               | 570       | 90909            | NR               | 700       | 27409            | NR               | 830       | 2574             | NR               | 960       | 1477             | NR               |
| 445       | 29901            | NR               | 575       | 99621            | NR               | 705       | 24204            | NR               | 835       | 2633             | NR               | 965       | 1568             | NR               |
| 450       | 24862            | NR               | 580       | 108484           | NR               | 710       | 21558            | NR               | 840       | 2526             | NR               | 970       | 2030             | NR               |
| 455       | 15942            | NR               | 585       | 116679           | NR               | 715       | 19222            | NR               | 845       | 2631             | NR               | 975       | 1986             | NR               |
| 460       | 9916             | NR               | 590       | 123752           | NR               | 720       | 17310            | NR               | 850       | 2079             | NR               | 980       | 2540             | NR               |
| 465       | 7051             | NR               | 595       | 129324           | NR               | 725       | 15280            | NR               | 855       | 2309             | NR               | 985       | 1139             | NR               |
| 470       | 5227             | NR               | 600       | 134082           | NR               | 730       | 13282            | NR               | 860       | 2528             | NR               | 990       | 2018             | NR               |
| 475       | 4257             | NR               | 605       | 135698           | NR               | 735       | 11753            | NR               | 865       | 2121             | NR               | 995       | 3445             | NR               |
| 480       | 4052             | NR               | 610       | 135144           | NR               | 740       | 10654            | NR               | 870       | 2751             | NR               | 1000      | 3704             | NR               |
| 485       | 4298             | NR               | 615       | 134180           | NR               | 745       | 9451             | NR               | 875       | 2317             | NR               |           |                  |                  |

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**Melanopic Flux vs. Wavelength**



**Melanopic Lumens: 1470.8 M/P: 0.27**

| 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       | 1768             | NR               | 490       | 5206             | NR               | 620       | 130919           | NR               | 750       | 8553             | NR               | 880       | 2713             | NR               |
| 365       | 1569             | NR               | 495       | 7286             | NR               | 625       | 125335           | NR               | 755       | 7696             | NR               | 885       | 2316             | NR               |
| 370       | 1594             | NR               | 500       | 10654            | NR               | 630       | 118388           | NR               | 760       | 6978             | NR               | 890       | 2539             | NR               |
| 375       | 1744             | NR               | 505       | 15189            | NR               | 635       | 111855           | NR               | 765       | 6377             | NR               | 895       | 1933             | NR               |
| 380       | 1659             | NR               | 510       | 20541            | NR               | 640       | 104062           | NR               | 770       | 5600             | NR               | 900       | 2216             | NR               |
| 385       | 1504             | NR               | 515       | 26492            | NR               | 645       | 96365            | NR               | 775       | 5000             | NR               | 905       | 2067             | NR               |
| 390       | 1541             | NR               | 520       | 32294            | NR               | 650       | 88651            | NR               | 780       | 4709             | NR               | 910       | 1959             | NR               |
| 395       | 1355             | NR               | 525       | 38123            | NR               | 655       | 81152            | NR               | 785       | 4305             | NR               | 915       | 1874             | NR               |
| 400       | 1243             | NR               | 530       | 43232            | NR               | 660       | 73523            | NR               | 790       | 4040             | NR               | 920       | 1484             | NR               |
| 405       | 1417             | NR               | 535       | 48012            | NR               | 665       | 66123            | NR               | 795       | 3642             | NR               | 925       | 1914             | NR               |
| 410       | 2147             | NR               | 540       | 52623            | NR               | 670       | 58677            | NR               | 800       | 3594             | NR               | 930       | 1948             | NR               |
| 415       | 3837             | NR               | 545       | 57516            | NR               | 675       | 52349            | NR               | 805       | 3190             | NR               | 935       | 2079             | NR               |
| 420       | 7159             | NR               | 550       | 62613            | NR               | 680       | 46159            | NR               | 810       | 3241             | NR               | 940       | 2263             | NR               |
| 425       | 12599            | NR               | 555       | 68554            | NR               | 685       | 40525            | NR               | 815       | 2732             | NR               | 945       | 1688             | NR               |
| 430       | 19019            | NR               | 560       | 75325            | NR               | 690       | 35615            | NR               | 820       | 2612             | NR               | 950       | 1560             | NR               |
| 435       | 24875            | NR               | 565       | 82533            | NR               | 695       | 31158            | NR               | 825       | 2966             | NR               | 955       | 2826             | NR               |
| 440       | 29103            | NR               | 570       | 90909            | NR               | 700       | 27409            | NR               | 830       | 2574             | NR               | 960       | 1477             | NR               |
| 445       | 29901            | NR               | 575       | 99621            | NR               | 705       | 24204            | NR               | 835       | 2633             | NR               | 965       | 1568             | NR               |
| 450       | 24862            | NR               | 580       | 108484           | NR               | 710       | 21558            | NR               | 840       | 2526             | NR               | 970       | 2030             | NR               |
| 455       | 15942            | NR               | 585       | 116679           | NR               | 715       | 19222            | NR               | 845       | 2631             | NR               | 975       | 1986             | NR               |
| 460       | 9916             | NR               | 590       | 123752           | NR               | 720       | 17310            | NR               | 850       | 2079             | NR               | 980       | 2540             | NR               |
| 465       | 7051             | NR               | 595       | 129324           | NR               | 725       | 15280            | NR               | 855       | 2309             | NR               | 985       | 1139             | NR               |
| 470       | 5227             | NR               | 600       | 134082           | NR               | 730       | 13282            | NR               | 860       | 2528             | NR               | 990       | 2018             | NR               |
| 475       | 4257             | NR               | 605       | 135698           | NR               | 735       | 11753            | NR               | 865       | 2121             | NR               | 995       | 3445             | NR               |
| 480       | 4052             | NR               | 610       | 135144           | NR               | 740       | 10654            | NR               | 870       | 2751             | NR               | 1000      | 3704             | NR               |
| 485       | 4298             | NR               | 615       | 134180           | NR               | 745       | 9451             | NR               | 875       | 2317             | NR               |           |                  |                  |

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### Summary

$R_f = 69.8$   
 $R_g = 99.2$   
 CIE  $R_a = 72.0$   
 $R_g = -17.4$



### Color Vector Graphics



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 87 | CES26 = 56 | CES51 = 74 | CES76 = 56 |
| CES02 = 65 | CES27 = 76 | CES52 = 76 | CES77 = 81 |
| CES03 = 32 | CES28 = 83 | CES53 = 65 | CES78 = 63 |
| CES04 = 72 | CES29 = 46 | CES54 = 78 | CES79 = 84 |
| CES05 = 52 | CES30 = 48 | CES55 = 75 | CES80 = 84 |
| CES06 = 52 | CES31 = 51 | CES56 = 65 | CES81 = 63 |
| CES07 = 44 | CES32 = 51 | CES57 = 62 | CES82 = 92 |
| CES08 = 42 | CES33 = 53 | CES58 = 66 | CES83 = 83 |
| CES09 = 29 | CES34 = 70 | CES59 = 84 | CES84 = 92 |
| CES10 = 78 | CES35 = 85 | CES60 = 90 | CES85 = 81 |
| CES11 = 61 | CES36 = 78 | CES61 = 84 | CES86 = 56 |
| CES12 = 68 | CES37 = 80 | CES62 = 70 | CES87 = 78 |
| CES13 = 45 | CES38 = 53 | CES63 = 68 | CES88 = 72 |
| CES14 = 75 | CES39 = 90 | CES64 = 69 | CES89 = 62 |
| CES15 = 72 | CES40 = 84 | CES65 = 67 | CES90 = 67 |
| CES16 = 49 | CES41 = 75 | CES66 = 64 | CES91 = 90 |
| CES17 = 51 | CES42 = 79 | CES67 = 63 | CES92 = 67 |
| CES18 = 57 | CES43 = 64 | CES68 = 69 | CES93 = 79 |
| CES19 = 74 | CES44 = 98 | CES69 = 80 | CES94 = 52 |
| CES20 = 68 | CES45 = 73 | CES70 = 63 | CES95 = 76 |
| CES21 = 89 | CES46 = 67 | CES71 = 63 | CES96 = 78 |
| CES22 = 81 | CES47 = 60 | CES72 = 87 | CES97 = 77 |
| CES23 = 92 | CES48 = 48 | CES73 = 56 | CES98 = 71 |
| CES24 = 92 | CES49 = 64 | CES74 = 87 | CES99 = 65 |
| CES25 = 74 | CES50 = 74 | CES75 = 66 |            |



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Color Rendition by Hue-Angle Bin



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**Measure Comparisons**



(END OF REPORT)