

Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



Scaled data based on original data using  
LM-79-08 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: P318131

Luminaire Tested: **GLEON-SA7C-750-U-T2**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P318131  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-12)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: McGRAW-EDISON  
Catalog Number: GLEON-SA7C-750-U-T2  
Description: GALLEON AREA AND ROADWAY LUMINAIRE  
(7) 70 CRI, 5000K, 1050mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II OPTICS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 49095 lumens  
Efficiency: N/A  
Efficacy: 125.6 lumens/watt  
Luminous Opening: Rectangular (W 2' x L: 1' x H: 0')  
IES Classification: Type III - Medium  
BUG Rating: B4 - U0 - G5

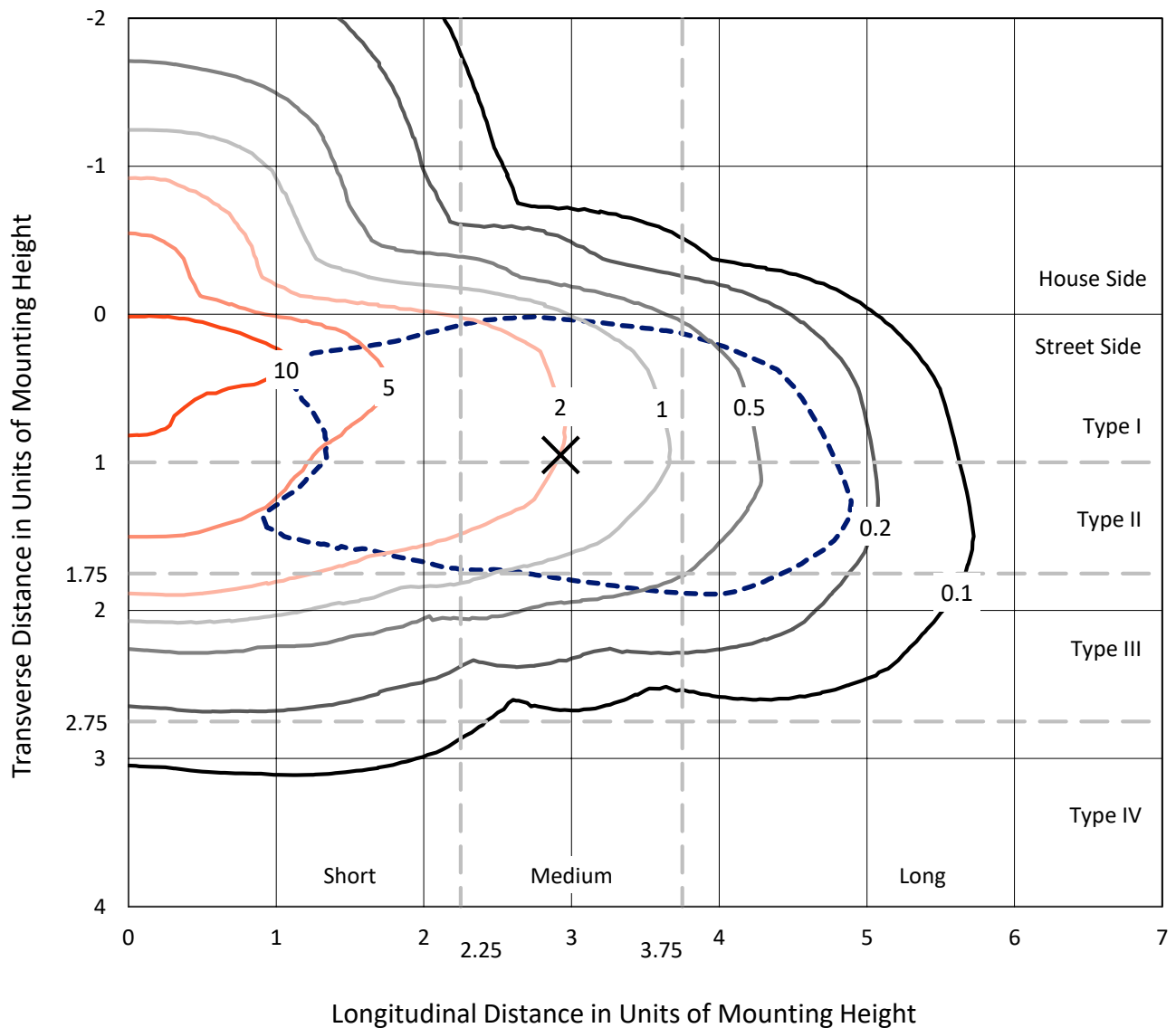
Input Watts (W): 391  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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### Iso-Footcandle Lines of Horizontal Illumination

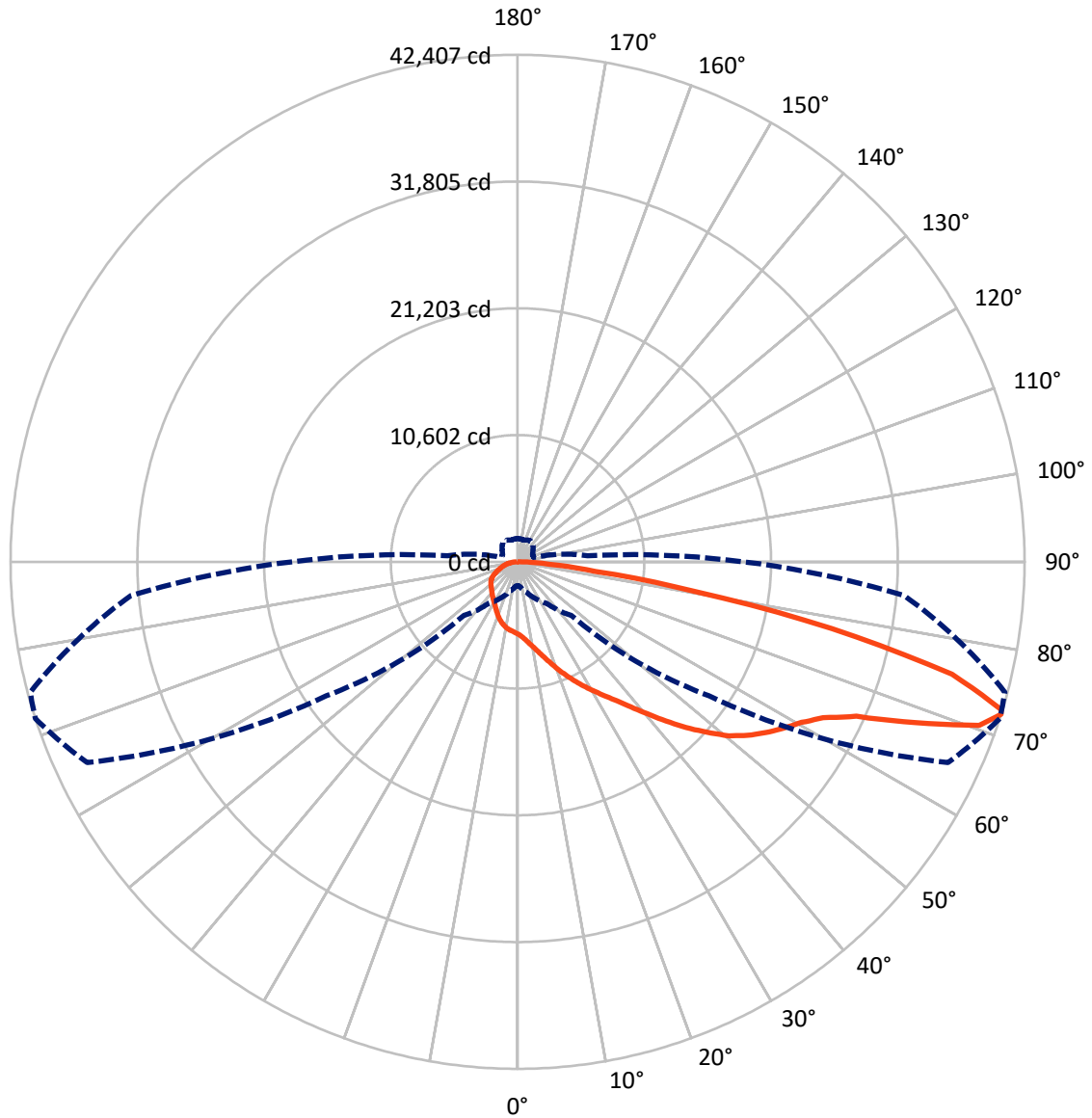
✕ Max cd  
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 13.3 fc  
 Type III - Medium - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 72-Deg Lateral      - - - Horizontal Cone Through 72-Deg Vertical

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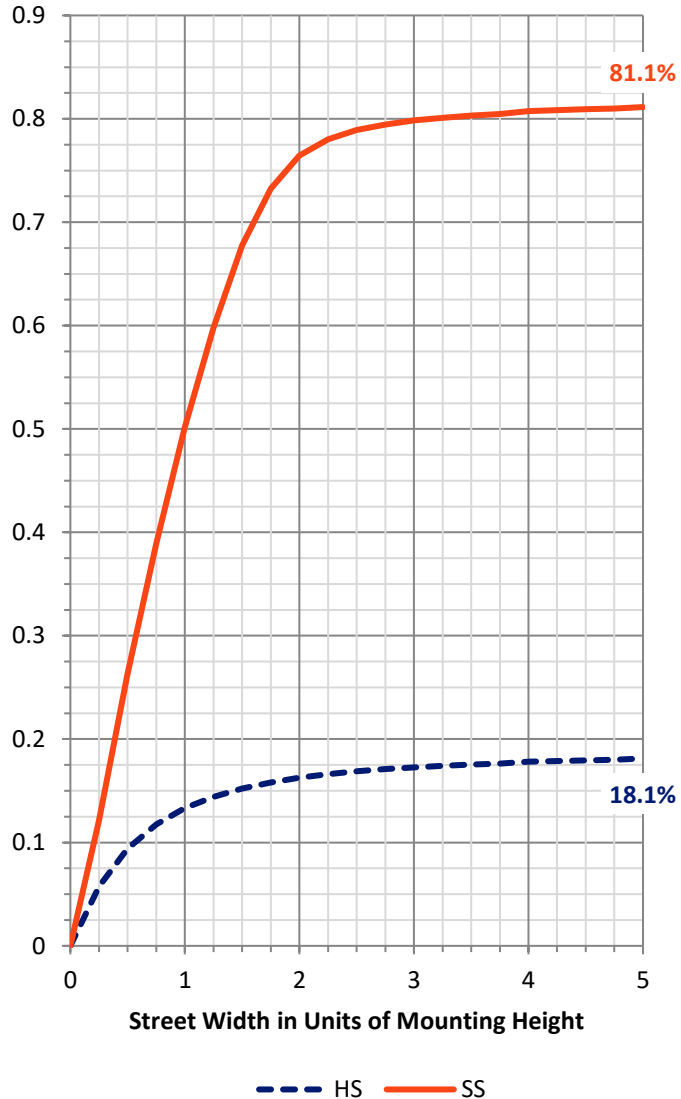
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 9107.4   | 0.0    | 9107.4  |
|                    | % Fixture | 18.6     | 0.0    | 18.6    |
| <b>Street Side</b> | Lumens    | 39987.5  | 0.0    | 39987.5 |
|                    | % Fixture | 81.4     | 0.0    | 81.4    |
| <b>Total</b>       | Lumens    | 49095.0  | 0.0    | 49095.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 605.2   | 1.2       |
| 10°-20°   | 1955.8  | 4.0       |
| 20°-30°   | 3427.1  | 7.0       |
| 30°-40°   | 5081.4  | 10.4      |
| 40°-50°   | 7431.9  | 15.1      |
| 50°-60°   | 10226.3 | 20.8      |
| 60°-70°   | 11384.9 | 23.2      |
| 70°-80°   | 7714.4  | 15.7      |
| 80°-90°   | 1267.9  | 2.6       |
| 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°    | 49095.0 | 100.0     |
| 0°-180°   | 49095.0 | 100.0     |

**Coefficient of Utilization**

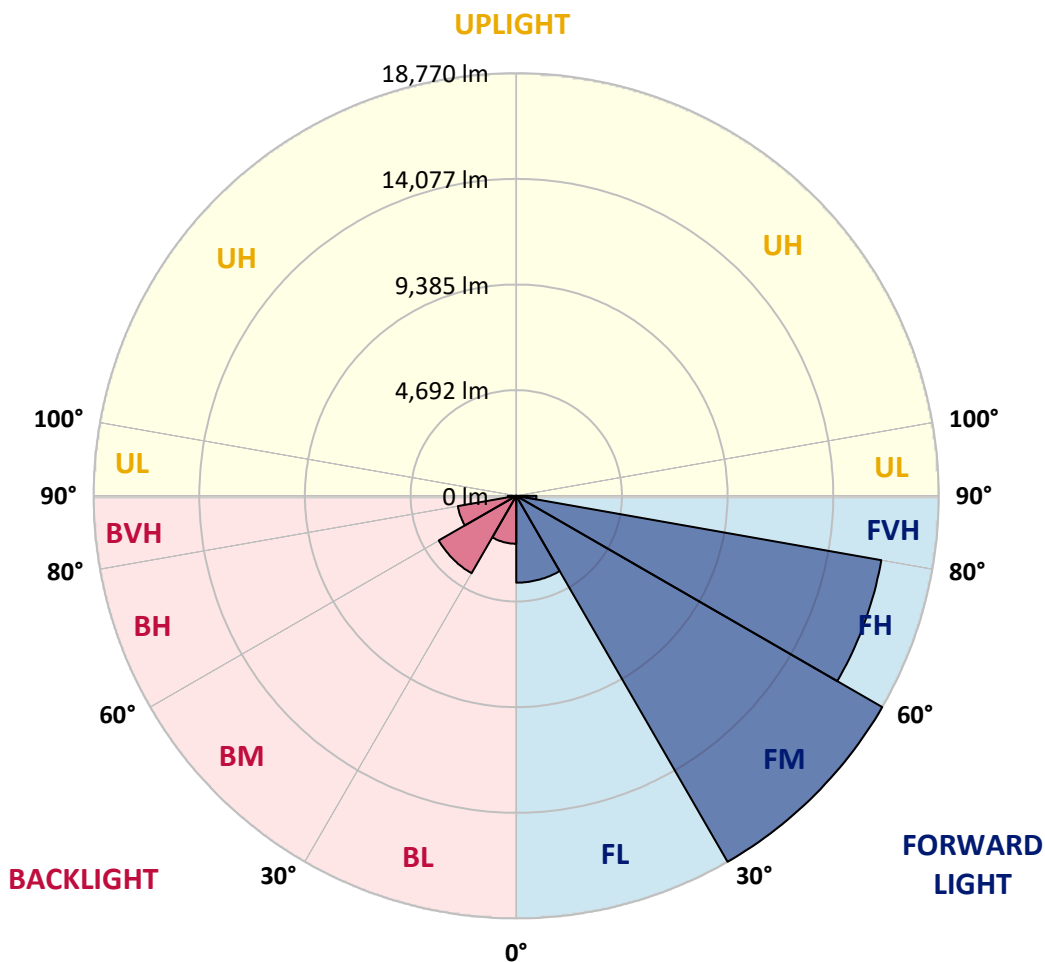


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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone           | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |         |
|----------------|---------|-----------|-------------------------|------|---------|
|                |         |           | B                       | U    | G       |
| FL (0°-30°)    | 3859.2  | 7.9       |                         |      |         |
| FM (30°-60°)   | 18769.6 | 38.2      |                         |      |         |
| FH (60°-80°)   | 16464.4 | 33.5      |                         |      | G5      |
| FVH (80°-90°)  | 894.4   | 1.8       |                         |      | G5      |
| BL (0°-30°)    | 2129.0  | 4.3       | B3/2500                 |      |         |
| BM (30°-60°)   | 3970.0  | 8.1       | B3/5000                 |      |         |
| BH (60°-80°)   | 2634.9  | 5.4       | B4/5000                 |      | G4/5000 |
| BVH (80°-90°)  | 373.6   | 0.8       |                         |      | G3/500  |
| UL (90°-100°)  | 0.0     | 0.0       |                         | U0/0 |         |
| UH (100°-180°) | 0.0     | 0.0       |                         | U0/0 |         |

**BUG Rating: B4-U0-G5**  
 Type III Medium





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 45°     | 55°     | 65°     | 72°     | 75°     | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 6040.0  | 6040.0  | 6040.0  | 6040.0  | 6040.0  | 6040.0  | 6040.0  | 6040.0  | 6040.0  | 6040.0  | 6040.0  |
| 2.5°  | 6672.2  | 6662.1  | 6626.6  | 6626.6  | 6558.9  | 6501.5  | 6393.3  | 6320.6  | 6234.4  | 6203.9  | 6102.5  |
| 5°    | 7317.9  | 7321.3  | 7277.4  | 7246.9  | 7147.2  | 7025.5  | 6841.2  | 6673.9  | 6506.5  | 6438.9  | 6231.0  |
| 7.5°  | 7860.6  | 7853.8  | 7842.0  | 7816.6  | 7723.7  | 7598.6  | 7350.1  | 7101.6  | 6854.8  | 6753.3  | 6395.0  |
| 10°   | 8208.8  | 8224.0  | 8234.2  | 8246.0  | 8207.1  | 8117.5  | 7882.6  | 7580.0  | 7257.1  | 7118.5  | 6591.1  |
| 12.5° | 8384.6  | 8411.7  | 8459.0  | 8540.1  | 8604.4  | 8594.2  | 8423.5  | 8102.3  | 7718.6  | 7544.5  | 6836.2  |
| 15°   | 8487.7  | 8523.2  | 8597.6  | 8743.0  | 8923.9  | 9027.0  | 8981.3  | 8690.6  | 8262.9  | 8048.2  | 7135.4  |
| 17.5° | 8552.0  | 8580.7  | 8695.7  | 8890.1  | 9158.8  | 9432.7  | 9552.7  | 9309.3  | 8878.2  | 8633.1  | 7478.5  |
| 20°   | 8595.9  | 8617.9  | 8761.6  | 8989.8  | 9338.0  | 9774.2  | 10108.9 | 10048.0 | 9556.1  | 9238.3  | 7836.9  |
| 22.5° | 8694.0  | 8712.6  | 8849.5  | 9079.4  | 9464.8  | 10027.7 | 10644.7 | 10736.0 | 10271.2 | 9911.1  | 8220.6  |
| 25°   | 8967.8  | 8967.8  | 9082.8  | 9243.4  | 9605.1  | 10247.5 | 11097.8 | 11501.8 | 11001.4 | 10582.2 | 8575.6  |
| 27.5° | 9490.2  | 9485.1  | 9527.4  | 9583.1  | 9857.0  | 10470.6 | 11501.8 | 12178.0 | 11758.7 | 11300.6 | 8920.5  |
| 30°   | 10108.9 | 10142.7 | 10147.8 | 10120.7 | 10249.2 | 10749.6 | 11875.4 | 12891.3 | 12521.1 | 12027.5 | 9273.8  |
| 32.5° | 10905.1 | 10927.0 | 10901.7 | 10812.1 | 10793.5 | 11145.1 | 12242.2 | 13638.5 | 13346.1 | 12786.5 | 9596.7  |
| 35°   | 11916.0 | 11873.7 | 11794.2 | 11611.7 | 11437.6 | 11674.2 | 12661.4 | 14385.7 | 14272.4 | 13704.5 | 10041.3 |
| 37.5° | 12999.5 | 13001.2 | 12903.2 | 12489.0 | 12249.0 | 12350.4 | 13239.6 | 15232.6 | 15393.2 | 14796.5 | 10610.9 |
| 40°   | 13868.4 | 13914.1 | 13974.9 | 13430.6 | 13119.6 | 13259.9 | 13974.9 | 16214.8 | 16718.5 | 16091.4 | 11353.0 |
| 42.5° | 14475.3 | 14527.7 | 14700.1 | 14358.7 | 14035.8 | 14296.1 | 14840.4 | 17262.8 | 18206.1 | 17585.7 | 12221.9 |
| 45°   | 15117.7 | 15146.4 | 15268.1 | 15121.0 | 14914.8 | 15501.4 | 15815.8 | 18348.1 | 19779.9 | 19178.1 | 13193.9 |
| 47.5° | 15793.8 | 15824.3 | 15949.4 | 15851.3 | 15743.1 | 16627.2 | 16833.5 | 19370.8 | 21287.8 | 20927.7 | 14231.9 |
| 50°   | 16628.9 | 16649.2 | 16767.5 | 16590.0 | 16623.9 | 17475.8 | 17742.9 | 20309.0 | 22868.4 | 22499.8 | 15273.2 |
| 52.5° | 17768.3 | 17773.4 | 17937.3 | 17776.7 | 17617.8 | 18097.9 | 18525.6 | 21193.1 | 24107.5 | 23933.3 | 16314.5 |
| 55°   | 18660.8 | 18714.9 | 19252.5 | 19218.7 | 19127.4 | 18662.5 | 19179.8 | 22035.0 | 25213.0 | 25295.8 | 17420.1 |
| 57.5° | 18091.2 | 18302.5 | 19391.1 | 20158.6 | 20905.8 | 20067.3 | 20063.9 | 22983.3 | 26240.8 | 26633.0 | 18635.5 |
| 60°   | 15844.6 | 16131.9 | 17736.2 | 19438.4 | 21776.3 | 22511.7 | 21899.7 | 24141.3 | 27278.7 | 27958.3 | 20158.6 |
| 62.5° | 11315.8 | 11789.2 | 13963.1 | 16681.3 | 20582.9 | 24131.1 | 25635.6 | 25978.8 | 28690.3 | 29493.2 | 22138.1 |
| 65°   | 5720.5  | 6078.8  | 7901.1  | 11175.5 | 16444.7 | 23072.9 | 29696.1 | 30002.0 | 31143.1 | 31856.5 | 25186.0 |
| 67.5° | 3475.6  | 3610.8  | 4500.0  | 6215.8  | 10081.8 | 17972.8 | 31021.4 | 36708.0 | 35889.9 | 36268.5 | 29532.1 |
| 70°   | 2561.0  | 2660.8  | 3215.2  | 4128.1  | 5798.2  | 10546.7 | 26954.2 | 41493.7 | 40956.1 | 40913.9 | 32744.0 |
| 72°   | 1994.7  | 2067.4  | 2557.6  | 3335.3  | 4239.6  | 6327.3  | 19536.5 | 39727.2 | 42406.5 | 42193.5 | 32449.8 |
| 72.5° | 1891.6  | 1955.8  | 2402.1  | 3139.2  | 4006.4  | 5735.7  | 17565.4 | 38535.4 | 42301.7 | 42205.4 | 32069.5 |
| 75°   | 1489.3  | 1534.9  | 1778.3  | 2427.5  | 3135.8  | 3254.1  | 9625.4  | 29863.4 | 37526.2 | 39086.5 | 28844.1 |
| 77.5° | 1232.3  | 1239.1  | 1367.6  | 1766.5  | 2444.4  | 2300.7  | 4728.2  | 20719.8 | 26871.3 | 28587.1 | 20432.4 |
| 80°   | 1004.1  | 1012.6  | 1073.4  | 1239.1  | 1849.3  | 1702.3  | 2244.9  | 11914.3 | 15045.0 | 15063.6 | 9716.7  |
| 82.5° | 799.6   | 801.3   | 868.9   | 906.1   | 1328.7  | 1217.1  | 1286.4  | 5593.7  | 6574.1  | 6324.0  | 3492.5  |
| 85°   | 562.9   | 551.1   | 848.6   | 743.8   | 868.9   | 781.0   | 710.0   | 2214.5  | 2718.2  | 2599.9  | 1093.7  |
| 87.5° | 187.6   | 194.4   | 377.0   | 481.8   | 507.1   | 442.9   | 316.1   | 848.6   | 1026.1  | 1017.6  | 346.5   |
| 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: P318131  
 CATALOG NUMBER: GLEON-SA7C-750-U-T2

**CANDELA DISTRIBUTION (continued):**

|       | 90°     | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 6040.0  | 6040.0 | 6040.0 | 6040.0 | 6040.0 | 6040.0 | 6040.0 | 6040.0 | 6040.0 | 6040.0 | 6040.0 |
| 2.5°  | 6070.4  | 6016.3 | 5936.8 | 5848.9 | 5779.6 | 5708.6 | 5656.2 | 5629.2 | 5598.8 | 5573.4 | 5603.8 |
| 5°    | 6134.6  | 6033.2 | 5864.2 | 5698.5 | 5576.8 | 5468.6 | 5390.8 | 5350.3 | 5313.1 | 5287.7 | 5291.1 |
| 7.5°  | 6239.4  | 6075.5 | 5791.5 | 5549.7 | 5380.7 | 5264.1 | 5184.6 | 5157.6 | 5133.9 | 5127.1 | 5135.6 |
| 10°   | 6351.0  | 6109.3 | 5695.1 | 5373.9 | 5181.2 | 5084.9 | 5049.4 | 5068.0 | 5084.9 | 5100.1 | 5117.0 |
| 12.5° | 6477.8  | 6139.7 | 5554.8 | 5167.7 | 5003.7 | 4966.5 | 5002.0 | 5083.2 | 5142.3 | 5177.8 | 5199.8 |
| 15°   | 6643.5  | 6166.7 | 5392.5 | 4961.5 | 4851.6 | 4893.8 | 5013.9 | 5154.2 | 5257.3 | 5323.2 | 5333.4 |
| 17.5° | 6795.6  | 6165.1 | 5184.6 | 4753.5 | 4728.2 | 4851.6 | 5032.5 | 5230.2 | 5368.9 | 5461.8 | 5480.4 |
| 20°   | 6952.8  | 6119.4 | 4942.9 | 4550.7 | 4603.1 | 4805.9 | 5040.9 | 5279.3 | 5446.6 | 5554.8 | 5580.2 |
| 22.5° | 7099.9  | 6040.0 | 4677.5 | 4366.4 | 4498.3 | 4745.1 | 5008.8 | 5250.5 | 5417.9 | 5505.8 | 5532.8 |
| 25°   | 7199.6  | 5901.3 | 4408.7 | 4210.9 | 4405.3 | 4670.7 | 4904.0 | 5098.4 | 5223.5 | 5267.4 | 5274.2 |
| 27.5° | 7250.3  | 5720.5 | 4155.1 | 4075.7 | 4308.9 | 4549.0 | 4709.6 | 4805.9 | 4841.4 | 4838.1 | 4831.3 |
| 30°   | 7257.1  | 5482.1 | 3937.1 | 3965.8 | 4197.4 | 4369.8 | 4445.9 | 4427.3 | 4381.6 | 4303.9 | 4310.6 |
| 32.5° | 7235.1  | 5213.3 | 3754.5 | 3861.0 | 4055.4 | 4151.7 | 4155.1 | 4065.5 | 3943.8 | 3820.4 | 3786.6 |
| 35°   | 7241.9  | 4949.6 | 3593.9 | 3742.6 | 3883.0 | 3925.2 | 3886.3 | 3754.5 | 3588.8 | 3429.9 | 3396.1 |
| 37.5° | 7316.3  | 4719.7 | 3455.3 | 3605.7 | 3691.9 | 3702.1 | 3646.3 | 3507.7 | 3386.0 | 3230.4 | 3216.9 |
| 40°   | 7493.7  | 4555.8 | 3323.4 | 3451.9 | 3500.9 | 3506.0 | 3426.5 | 3328.5 | 3338.6 | 3255.8 | 3254.1 |
| 42.5° | 7813.2  | 4484.8 | 3206.8 | 3291.3 | 3321.7 | 3331.9 | 3271.0 | 3208.5 | 3296.4 | 3242.3 | 3223.7 |
| 45°   | 8225.7  | 4501.7 | 3108.7 | 3134.1 | 3189.9 | 3237.2 | 3200.0 | 3123.9 | 3157.8 | 2922.8 | 2845.0 |
| 47.5° | 8702.4  | 4609.8 | 3031.0 | 2998.9 | 3095.2 | 3184.8 | 3127.3 | 3012.4 | 2892.4 | 2659.1 | 2615.1 |
| 50°   | 9260.3  | 4777.2 | 2960.0 | 2865.3 | 2992.1 | 3113.8 | 3056.3 | 2892.4 | 2711.5 | 2598.2 | 2583.0 |
| 52.5° | 9841.8  | 4981.7 | 2889.0 | 2718.2 | 2861.9 | 3059.7 | 3031.0 | 2865.3 | 2642.2 | 2530.6 | 2510.3 |
| 55°   | 10501.1 | 5188.0 | 2799.4 | 2547.5 | 2721.6 | 3034.4 | 3019.1 | 2767.3 | 2589.8 | 2527.2 | 2512.0 |
| 57.5° | 11320.9 | 5423.0 | 2681.0 | 2370.0 | 2589.8 | 2943.1 | 2895.7 | 2708.1 | 2535.7 | 2488.3 | 2483.3 |
| 60°   | 12389.3 | 5769.5 | 2510.3 | 2180.7 | 2429.2 | 2802.8 | 2792.6 | 2621.9 | 2449.5 | 2415.6 | 2408.9 |
| 62.5° | 13991.8 | 6342.6 | 2275.3 | 1991.3 | 2250.0 | 2564.4 | 2657.4 | 2505.2 | 2358.2 | 2356.5 | 2359.9 |
| 65°   | 16476.8 | 7204.7 | 2020.1 | 1825.7 | 2069.1 | 2363.2 | 2500.2 | 2385.2 | 2265.2 | 2299.0 | 2304.1 |
| 67.5° | 19357.3 | 7919.7 | 1769.9 | 1663.4 | 1884.8 | 2172.2 | 2358.2 | 2265.2 | 2141.8 | 2229.7 | 2231.4 |
| 70°   | 20315.8 | 7280.8 | 1550.1 | 1502.8 | 1693.8 | 1988.0 | 2204.3 | 2133.3 | 2008.3 | 2096.2 | 2087.7 |
| 72°   | 18906.0 | 5877.7 | 1408.1 | 1381.1 | 1550.1 | 1835.8 | 2067.4 | 2009.9 | 1886.5 | 1945.7 | 1923.7 |
| 72.5° | 18461.4 | 5603.8 | 1372.6 | 1350.7 | 1511.3 | 1796.9 | 2031.9 | 1979.5 | 1856.1 | 1906.8 | 1886.5 |
| 75°   | 16468.3 | 4866.8 | 1179.9 | 1185.0 | 1318.5 | 1607.6 | 1832.4 | 1815.5 | 1688.8 | 1693.8 | 1687.1 |
| 77.5° | 11944.7 | 3568.5 | 994.0  | 1027.8 | 1122.5 | 1413.2 | 1631.3 | 1621.1 | 1482.5 | 1457.2 | 1452.1 |
| 80°   | 5543.0  | 1820.6 | 809.7  | 824.9  | 923.0  | 1181.6 | 1391.2 | 1377.7 | 1266.1 | 1234.0 | 1215.4 |
| 82.5° | 1898.4  | 865.5  | 608.6  | 618.7  | 715.1  | 951.7  | 1207.0 | 1198.5 | 1105.6 | 1043.0 | 1004.1 |
| 85°   | 677.9   | 431.1  | 426.0  | 415.8  | 510.5  | 748.9  | 1051.5 | 1005.8 | 868.9  | 740.4  | 737.0  |
| 87.5° | 219.8   | 184.3  | 219.8  | 218.1  | 297.5  | 507.1  | 764.1  | 650.8  | 630.5  | 524.0  | 513.9  |
| 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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LM-79-2008: Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGRAW-EDISON

Report Number: SP1-1908-441-4-R4

Test Date: 10/02/2019

Luminaire Tested: SA1C-750-U-5WQ

Data in this report applies to families of products SA1C-760-U-5WQ .

**Test Information**

Test Method: LM-79-2008  
 Report Number: SP1-1908-441-4-R4  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry: 4π  
 Issue Date: 10/28/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: MCGRAW-EDISON  
 Catalog Number: **SA1C-750-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): 4884  
 CIE u': 0.2101  
 CIE v': 0.4904  
 Duv: 0.0037  
 CIE x: 0.3493  
 CIE y: 0.3624  
 CIE z: 0.2884  
 Peak Wavelength (nm): 444  
 Dominant Wavelength (nm): 571  
 Purity: 13.7  
 Rf: 74.9  
 Rg: 96.3

|           |      |      |       |
|-----------|------|------|-------|
| CRI (Ra): | 73.5 |      |       |
| R1:       | 70.5 | R9:  | -28.4 |
| R2:       | 77.7 | R10: | 48.6  |
| R3:       | 84.6 | R11: | 73.2  |
| R4:       | 74.7 | R12: | 50.7  |
| R5:       | 71.9 | R13: | 71.2  |
| R6:       | 70.7 | R14: | 91.4  |
| R7:       | 81.2 |      |       |
| R8:       | 56.9 |      |       |



**Test Conditions**

Stabilization Time: 240M  
 Operation Time: 12H  
 Room Temperature (°C) / RH%: 25.0./44%  
 Sphere Temperature (°C): 25.7

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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 5000K 4-step quadrangle

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**Photopic Flux vs. Wavelength**



#####

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360    | 2945          | NR            | 490    | 37941         | NR            | 620    | 88803         | NR            | 750    | 3908          | NR            | 880    | 2997          | NR            |
| 365    | 2596          | NR            | 495    | 48525         | NR            | 625    | 80578         | NR            | 755    | 3988          | NR            | 885    | 2927          | NR            |
| 370    | 2732          | NR            | 500    | 60609         | NR            | 630    | 73127         | NR            | 760    | 3335          | NR            | 890    | 2649          | NR            |
| 375    | 2894          | NR            | 505    | 72036         | NR            | 635    | 66244         | NR            | 765    | 3438          | NR            | 895    | 2828          | NR            |
| 380    | 2822          | NR            | 510    | 82168         | NR            | 640    | 59440         | NR            | 770    | 3427          | NR            | 900    | 1407          | NR            |
| 385    | 2394          | NR            | 515    | 90898         | NR            | 645    | 52864         | NR            | 775    | 2759          | NR            | 905    | 2224          | NR            |
| 390    | 2370          | NR            | 520    | 97142         | NR            | 650    | 47085         | NR            | 780    | 2340          | NR            | 910    | 2905          | NR            |
| 395    | 2267          | NR            | 525    | 103255        | NR            | 655    | 41789         | NR            | 785    | 2412          | NR            | 915    | 3350          | NR            |
| 400    | 2262          | NR            | 530    | 106697        | NR            | 660    | 37064         | NR            | 790    | 1999          | NR            | 920    | 3114          | NR            |
| 405    | 3000          | NR            | 535    | 110081        | NR            | 665    | 32299         | NR            | 795    | 2054          | NR            | 925    | 2834          | NR            |
| 410    | 5324          | NR            | 540    | 112494        | NR            | 670    | 28142         | NR            | 800    | 2331          | NR            | 930    | 2271          | NR            |
| 415    | 10725         | NR            | 545    | 115513        | NR            | 675    | 24505         | NR            | 805    | 2648          | NR            | 935    | 2228          | NR            |
| 420    | 22128         | NR            | 550    | 117203        | NR            | 680    | 21162         | NR            | 810    | 2485          | NR            | 940    | 2833          | NR            |
| 425    | 44095         | NR            | 555    | 119753        | NR            | 685    | 18400         | NR            | 815    | 2409          | NR            | 945    | 2941          | NR            |
| 430    | 77002         | NR            | 560    | 122602        | NR            | 690    | 16065         | NR            | 820    | 2221          | NR            | 950    | 2323          | NR            |
| 435    | 119881        | NR            | 565    | 124314        | NR            | 695    | 13860         | NR            | 825    | 1562          | NR            | 955    | 1667          | NR            |
| 440    | 164454        | NR            | 570    | 126775        | NR            | 700    | 12177         | NR            | 830    | 2249          | NR            | 960    | 749           | NR            |
| 445    | 179997        | NR            | 575    | 127511        | NR            | 705    | 10757         | NR            | 835    | 2573          | NR            | 965    | 2669          | NR            |
| 450    | 142822        | NR            | 580    | 127577        | NR            | 710    | 9601          | NR            | 840    | 2764          | NR            | 970    | 3968          | NR            |
| 455    | 90008         | NR            | 585    | 126153        | NR            | 715    | 8944          | NR            | 845    | 3109          | NR            | 975    | 3886          | NR            |
| 460    | 60557         | NR            | 590    | 123678        | NR            | 720    | 7947          | NR            | 850    | 2963          | NR            | 980    | 2788          | NR            |
| 465    | 43305         | NR            | 595    | 119774        | NR            | 725    | 7062          | NR            | 855    | 2336          | NR            | 985    | 3496          | NR            |
| 470    | 31089         | NR            | 600    | 115733        | NR            | 730    | 6004          | NR            | 860    | 2118          | NR            | 990    | 2913          | NR            |
| 475    | 26278         | NR            | 605    | 109231        | NR            | 735    | 5594          | NR            | 865    | 3144          | NR            | 995    | 4659          | NR            |
| 480    | 27060         | NR            | 610    | 102408        | NR            | 740    | 5165          | NR            | 870    | 3069          | NR            | 1000   | 1308          | NR            |
| 485    | 30698         | NR            | 615    | 96015         | NR            | 745    | 4687          | NR            | 875    | 3311          | NR            |        |               |               |

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Scotopic Flux vs. Wavelength



Scotopic Lumens: 13493.5 S/P: 1.77

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360    | 2945          | NR            | 490    | 37941         | NR            | 620    | 88803         | NR            | 750    | 3908          | NR            | 880    | 2997          | NR            |
| 365    | 2596          | NR            | 495    | 48525         | NR            | 625    | 80578         | NR            | 755    | 3988          | NR            | 885    | 2927          | NR            |
| 370    | 2732          | NR            | 500    | 60609         | NR            | 630    | 73127         | NR            | 760    | 3335          | NR            | 890    | 2649          | NR            |
| 375    | 2894          | NR            | 505    | 72036         | NR            | 635    | 66244         | NR            | 765    | 3438          | NR            | 895    | 2828          | NR            |
| 380    | 2822          | NR            | 510    | 82168         | NR            | 640    | 59440         | NR            | 770    | 3427          | NR            | 900    | 1407          | NR            |
| 385    | 2394          | NR            | 515    | 90898         | NR            | 645    | 52864         | NR            | 775    | 2759          | NR            | 905    | 2224          | NR            |
| 390    | 2370          | NR            | 520    | 97142         | NR            | 650    | 47085         | NR            | 780    | 2340          | NR            | 910    | 2905          | NR            |
| 395    | 2267          | NR            | 525    | 103255        | NR            | 655    | 41789         | NR            | 785    | 2412          | NR            | 915    | 3350          | NR            |
| 400    | 2262          | NR            | 530    | 106697        | NR            | 660    | 37064         | NR            | 790    | 1999          | NR            | 920    | 3114          | NR            |
| 405    | 3000          | NR            | 535    | 110081        | NR            | 665    | 32299         | NR            | 795    | 2054          | NR            | 925    | 2834          | NR            |
| 410    | 5324          | NR            | 540    | 112494        | NR            | 670    | 28142         | NR            | 800    | 2331          | NR            | 930    | 2271          | NR            |
| 415    | 10725         | NR            | 545    | 115513        | NR            | 675    | 24505         | NR            | 805    | 2648          | NR            | 935    | 2228          | NR            |
| 420    | 22128         | NR            | 550    | 117203        | NR            | 680    | 21162         | NR            | 810    | 2485          | NR            | 940    | 2833          | NR            |
| 425    | 44095         | NR            | 555    | 119753        | NR            | 685    | 18400         | NR            | 815    | 2409          | NR            | 945    | 2941          | NR            |
| 430    | 77002         | NR            | 560    | 122602        | NR            | 690    | 16065         | NR            | 820    | 2221          | NR            | 950    | 2323          | NR            |
| 435    | 119881        | NR            | 565    | 124314        | NR            | 695    | 13860         | NR            | 825    | 1562          | NR            | 955    | 1667          | NR            |
| 440    | 164454        | NR            | 570    | 126775        | NR            | 700    | 12177         | NR            | 830    | 2249          | NR            | 960    | 749           | NR            |
| 445    | 179997        | NR            | 575    | 127511        | NR            | 705    | 10757         | NR            | 835    | 2573          | NR            | 965    | 2669          | NR            |
| 450    | 142822        | NR            | 580    | 127577        | NR            | 710    | 9601          | NR            | 840    | 2764          | NR            | 970    | 3968          | NR            |
| 455    | 90008         | NR            | 585    | 126153        | NR            | 715    | 8944          | NR            | 845    | 3109          | NR            | 975    | 3886          | NR            |
| 460    | 60557         | NR            | 590    | 123678        | NR            | 720    | 7947          | NR            | 850    | 2963          | NR            | 980    | 2788          | NR            |
| 465    | 43305         | NR            | 595    | 119774        | NR            | 725    | 7062          | NR            | 855    | 2336          | NR            | 985    | 3496          | NR            |
| 470    | 31089         | NR            | 600    | 115733        | NR            | 730    | 6004          | NR            | 860    | 2118          | NR            | 990    | 2913          | NR            |
| 475    | 26278         | NR            | 605    | 109231        | NR            | 735    | 5594          | NR            | 865    | 3144          | NR            | 995    | 4659          | NR            |
| 480    | 27060         | NR            | 610    | 102408        | NR            | 740    | 5165          | NR            | 870    | 3069          | NR            | 1000   | 1308          | NR            |
| 485    | 30698         | NR            | 615    | 96015         | NR            | 745    | 4687          | NR            | 875    | 3311          | NR            |        |               |               |

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**Melanopic Flux vs. Wavelength**



**Melanopic Lumens: 5378.9 M/P: 0.71**

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360    | 2945          | NR            | 490    | 37941         | NR            | 620    | 88803         | NR            | 750    | 3908          | NR            | 880    | 2997          | NR            |
| 365    | 2596          | NR            | 495    | 48525         | NR            | 625    | 80578         | NR            | 755    | 3988          | NR            | 885    | 2927          | NR            |
| 370    | 2732          | NR            | 500    | 60609         | NR            | 630    | 73127         | NR            | 760    | 3335          | NR            | 890    | 2649          | NR            |
| 375    | 2894          | NR            | 505    | 72036         | NR            | 635    | 66244         | NR            | 765    | 3438          | NR            | 895    | 2828          | NR            |
| 380    | 2822          | NR            | 510    | 82168         | NR            | 640    | 59440         | NR            | 770    | 3427          | NR            | 900    | 1407          | NR            |
| 385    | 2394          | NR            | 515    | 90898         | NR            | 645    | 52864         | NR            | 775    | 2759          | NR            | 905    | 2224          | NR            |
| 390    | 2370          | NR            | 520    | 97142         | NR            | 650    | 47085         | NR            | 780    | 2340          | NR            | 910    | 2905          | NR            |
| 395    | 2267          | NR            | 525    | 103255        | NR            | 655    | 41789         | NR            | 785    | 2412          | NR            | 915    | 3350          | NR            |
| 400    | 2262          | NR            | 530    | 106697        | NR            | 660    | 37064         | NR            | 790    | 1999          | NR            | 920    | 3114          | NR            |
| 405    | 3000          | NR            | 535    | 110081        | NR            | 665    | 32299         | NR            | 795    | 2054          | NR            | 925    | 2834          | NR            |
| 410    | 5324          | NR            | 540    | 112494        | NR            | 670    | 28142         | NR            | 800    | 2331          | NR            | 930    | 2271          | NR            |
| 415    | 10725         | NR            | 545    | 115513        | NR            | 675    | 24505         | NR            | 805    | 2648          | NR            | 935    | 2228          | NR            |
| 420    | 22128         | NR            | 550    | 117203        | NR            | 680    | 21162         | NR            | 810    | 2485          | NR            | 940    | 2833          | NR            |
| 425    | 44095         | NR            | 555    | 119753        | NR            | 685    | 18400         | NR            | 815    | 2409          | NR            | 945    | 2941          | NR            |
| 430    | 77002         | NR            | 560    | 122602        | NR            | 690    | 16065         | NR            | 820    | 2221          | NR            | 950    | 2323          | NR            |
| 435    | 119881        | NR            | 565    | 124314        | NR            | 695    | 13860         | NR            | 825    | 1562          | NR            | 955    | 1667          | NR            |
| 440    | 164454        | NR            | 570    | 126775        | NR            | 700    | 12177         | NR            | 830    | 2249          | NR            | 960    | 749           | NR            |
| 445    | 179997        | NR            | 575    | 127511        | NR            | 705    | 10757         | NR            | 835    | 2573          | NR            | 965    | 2669          | NR            |
| 450    | 142822        | NR            | 580    | 127577        | NR            | 710    | 9601          | NR            | 840    | 2764          | NR            | 970    | 3968          | NR            |
| 455    | 90008         | NR            | 585    | 126153        | NR            | 715    | 8944          | NR            | 845    | 3109          | NR            | 975    | 3886          | NR            |
| 460    | 60557         | NR            | 590    | 123678        | NR            | 720    | 7947          | NR            | 850    | 2963          | NR            | 980    | 2788          | NR            |
| 465    | 43305         | NR            | 595    | 119774        | NR            | 725    | 7062          | NR            | 855    | 2336          | NR            | 985    | 3496          | NR            |
| 470    | 31089         | NR            | 600    | 115733        | NR            | 730    | 6004          | NR            | 860    | 2118          | NR            | 990    | 2913          | NR            |
| 475    | 26278         | NR            | 605    | 109231        | NR            | 735    | 5594          | NR            | 865    | 3144          | NR            | 995    | 4659          | NR            |
| 480    | 27060         | NR            | 610    | 102408        | NR            | 740    | 5165          | NR            | 870    | 3069          | NR            | 1000   | 1308          | NR            |
| 485    | 30698         | NR            | 615    | 96015         | NR            | 745    | 4687          | NR            | 875    | 3311          | NR            |        |               |               |

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**Summary**

$R_f = 74.9$   
 $R_g = 96.3$   
 CIE  $R_a = 73.5$   
 $R_g = -28.4$



**Color Vector Graphics**





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

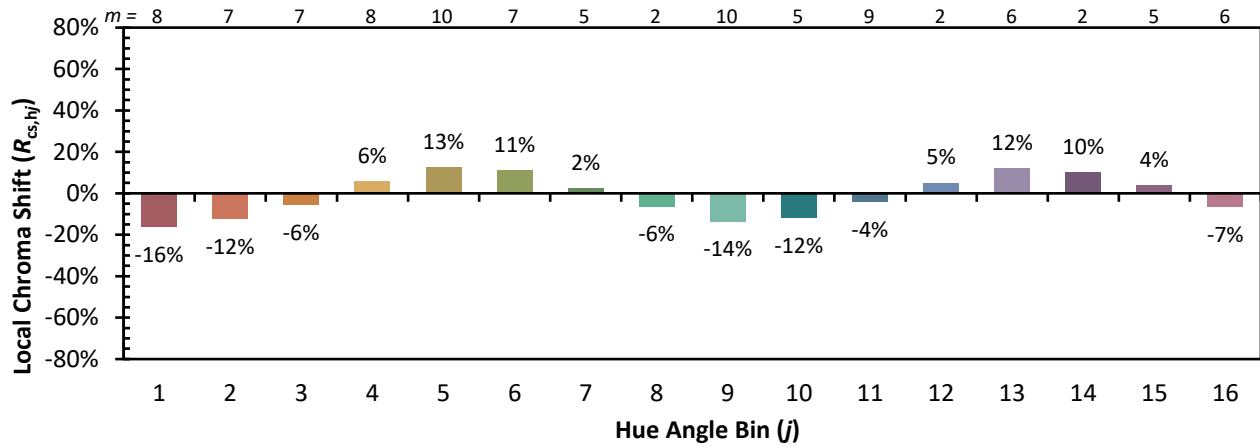
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 61 | CES51 = 90 | CES76 = 52 |
| CES02 = 60 | CES27 = 84 | CES52 = 91 | CES77 = 71 |
| CES03 = 30 | CES28 = 81 | CES53 = 79 | CES78 = 54 |
| CES04 = 69 | CES29 = 58 | CES54 = 83 | CES79 = 80 |
| CES05 = 46 | CES30 = 67 | CES55 = 83 | CES80 = 77 |
| CES06 = 50 | CES31 = 63 | CES56 = 73 | CES81 = 77 |
| CES07 = 39 | CES32 = 59 | CES57 = 72 | CES82 = 90 |
| CES08 = 38 | CES33 = 69 | CES58 = 73 | CES83 = 86 |
| CES09 = 29 | CES34 = 69 | CES59 = 88 | CES84 = 88 |
| CES10 = 73 | CES35 = 83 | CES60 = 93 | CES85 = 84 |
| CES11 = 56 | CES36 = 95 | CES61 = 88 | CES86 = 75 |
| CES12 = 61 | CES37 = 78 | CES62 = 85 | CES87 = 78 |
| CES13 = 41 | CES38 = 76 | CES63 = 77 | CES88 = 79 |
| CES14 = 74 | CES39 = 93 | CES64 = 74 | CES89 = 75 |
| CES15 = 70 | CES40 = 86 | CES65 = 67 | CES90 = 77 |
| CES16 = 46 | CES41 = 87 | CES66 = 69 | CES91 = 89 |
| CES17 = 49 | CES42 = 78 | CES67 = 67 | CES92 = 66 |
| CES18 = 55 | CES43 = 75 | CES68 = 73 | CES93 = 80 |
| CES19 = 71 | CES44 = 99 | CES69 = 81 | CES94 = 57 |
| CES20 = 64 | CES45 = 83 | CES70 = 63 | CES95 = 71 |
| CES21 = 85 | CES46 = 81 | CES71 = 60 | CES96 = 78 |
| CES22 = 77 | CES47 = 80 | CES72 = 86 | CES97 = 85 |
| CES23 = 91 | CES48 = 72 | CES73 = 53 | CES98 = 75 |
| CES24 = 90 | CES49 = 81 | CES74 = 96 | CES99 = 62 |
| CES25 = 71 | CES50 = 89 | CES75 = 58 |            |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)