

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: P322280

Luminaire Tested: **GLEON-SA6B-750-U-T3-HSS**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P322280  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-15)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: McGRAW-EDISON  
Catalog Number: GLEON-SA6B-750-U-T3-HSS  
Description: GALLEON AREA AND ROADWAY LUMINAIRE  
(6) 70 CRI, 5000K, 800mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III  
OPTICS WITH HOUSE SIDE SHIELD  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 24907 lumens  
Efficiency: N/A  
Efficacy: 100.0 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B2 - U0 - G4

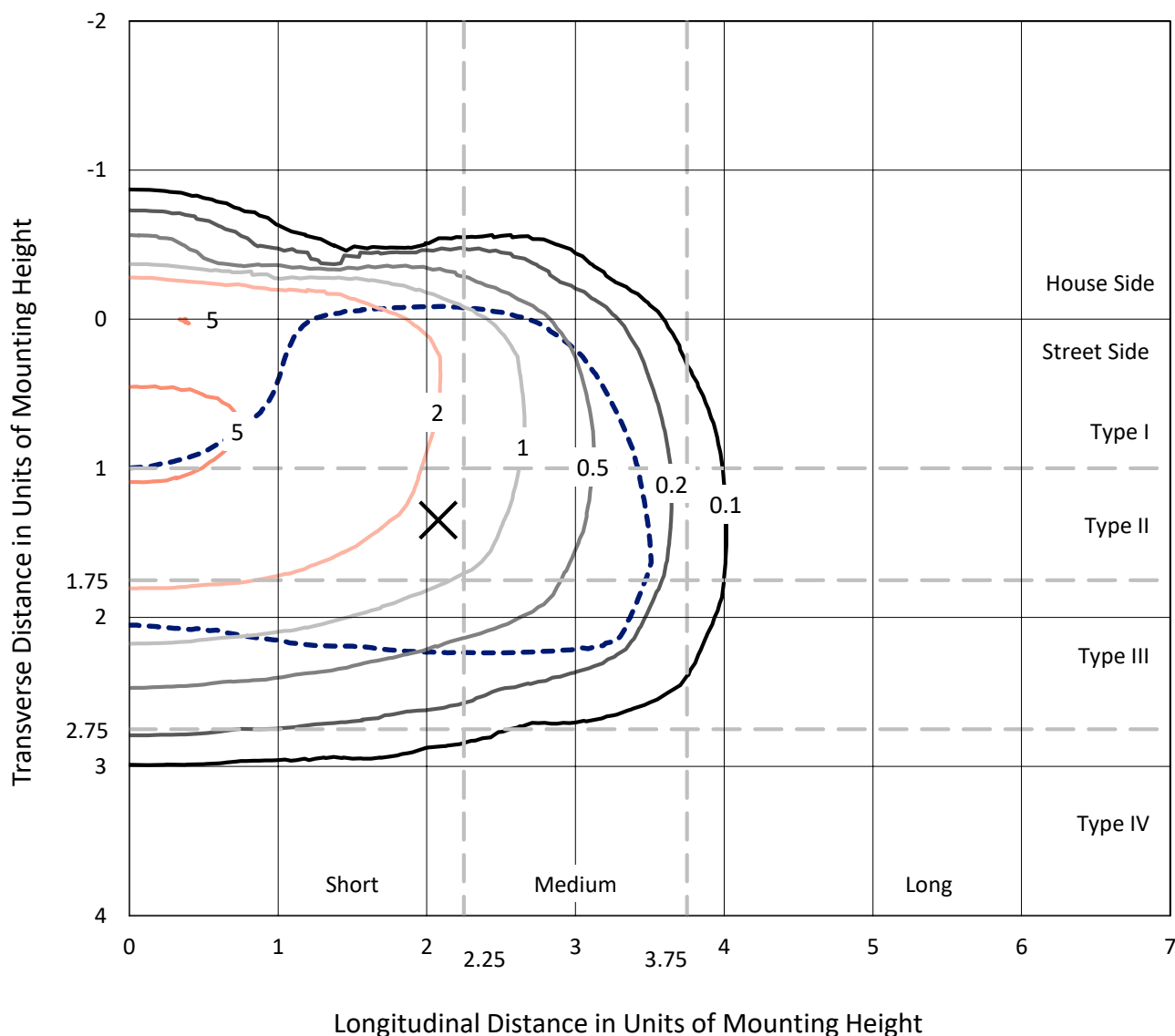
Input Watts (W): 249  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



REPORT NUMBER: P322280  
 CATALOG NUMBER: GLEON-SA6B-750-U-T3-HSS

## Iso-Footcandle Lines of Horizontal Illumination

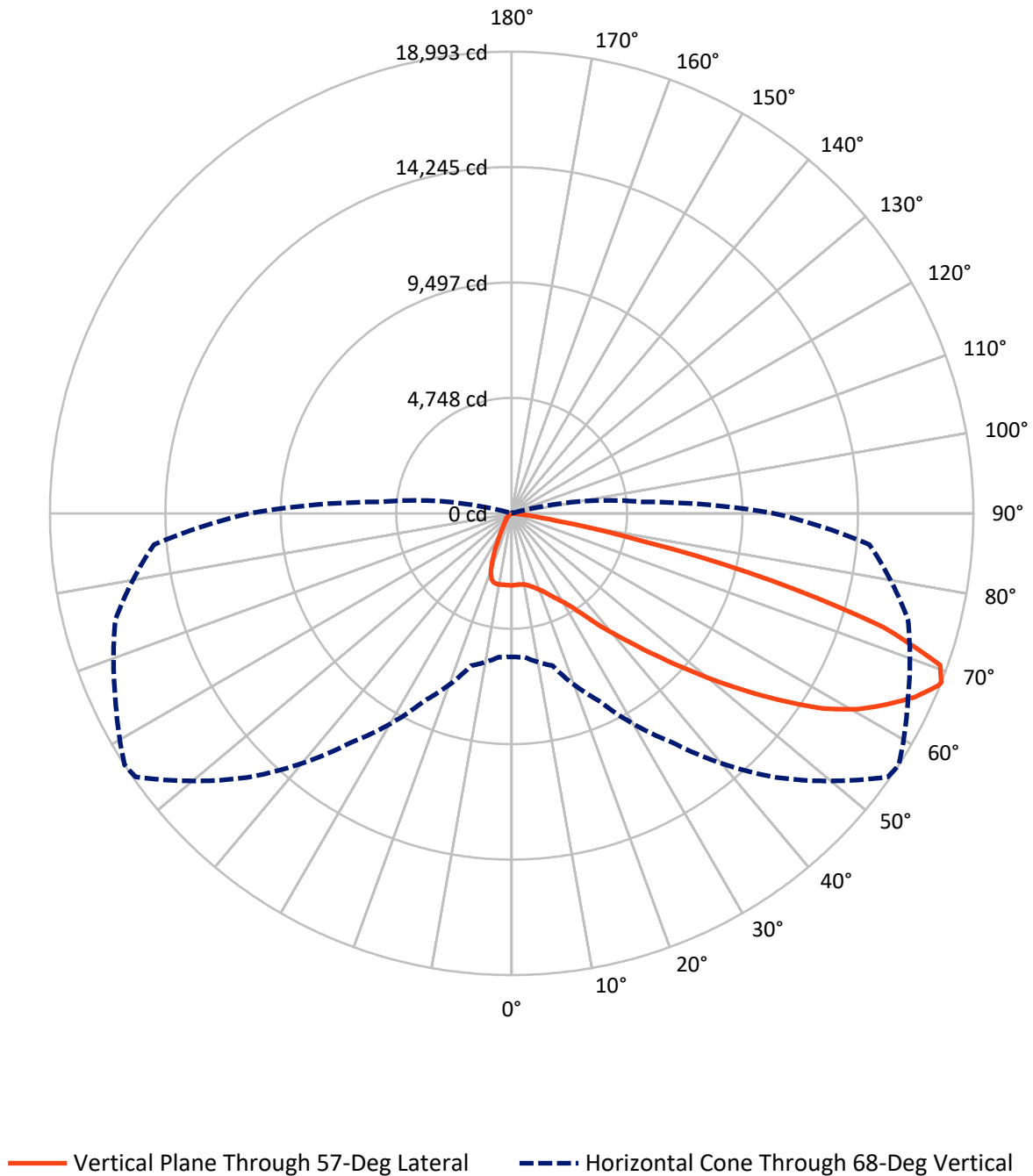
✕ Max cd  
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 6.1 fc  
 Type III - Short - N/A

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## Luminous Intensity Polar Plot



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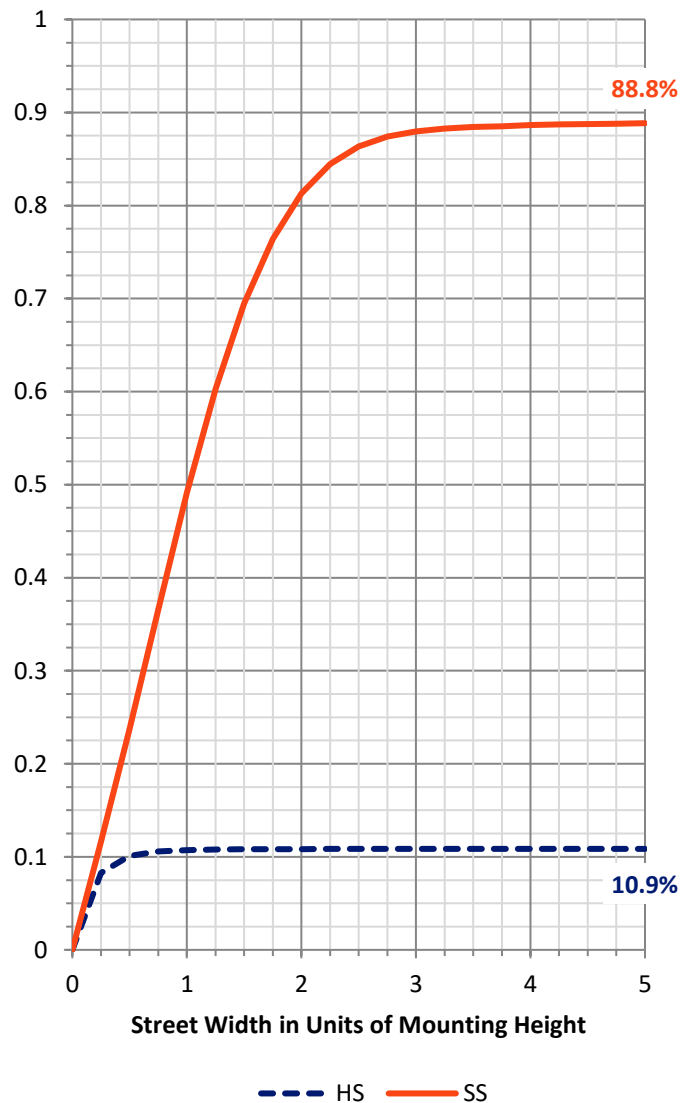
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 2731.2   | 0.0    | 2731.2  |
|                    | % Fixture | 11.0     | 0.0    | 11.0    |
| <b>Street Side</b> | Lumens    | 22175.8  | 0.0    | 22175.8 |
|                    | % Fixture | 89.0     | 0.0    | 89.0    |
| <b>Total</b>       | Lumens    | 24907.0  | 0.0    | 24907.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 277.0   | 1.1       |
| 10°-20°   | 767.5   | 3.1       |
| 20°-30°   | 1324.0  | 5.3       |
| 30°-40°   | 2285.2  | 9.2       |
| 40°-50°   | 3908.9  | 15.7      |
| 50°-60°   | 6254.0  | 25.1      |
| 60°-70°   | 7225.8  | 29.0      |
| 70°-80°   | 2761.1  | 11.1      |
| 80°-90°   | 103.5   | 0.4       |
| 90°-100°  | 0.0     | 0.0       |
| 100°-110° | 0.0     | 0.0       |
| 110°-120° | 0.0     | 0.0       |
| 120°-130° | 0.0     | 0.0       |
| 130°-140° | 0.0     | 0.0       |
| 140°-150° | 0.0     | 0.0       |
| 150°-160° | 0.0     | 0.0       |
| 160°-170° | 0.0     | 0.0       |
| 170°-180° | 0.0     | 0.0       |
| 0°-90°    | 24907.0 | 100.0     |
| 0°-180°   | 24907.0 | 100.0     |

**Coefficient of Utilization**



REPORT NUMBER: P322280

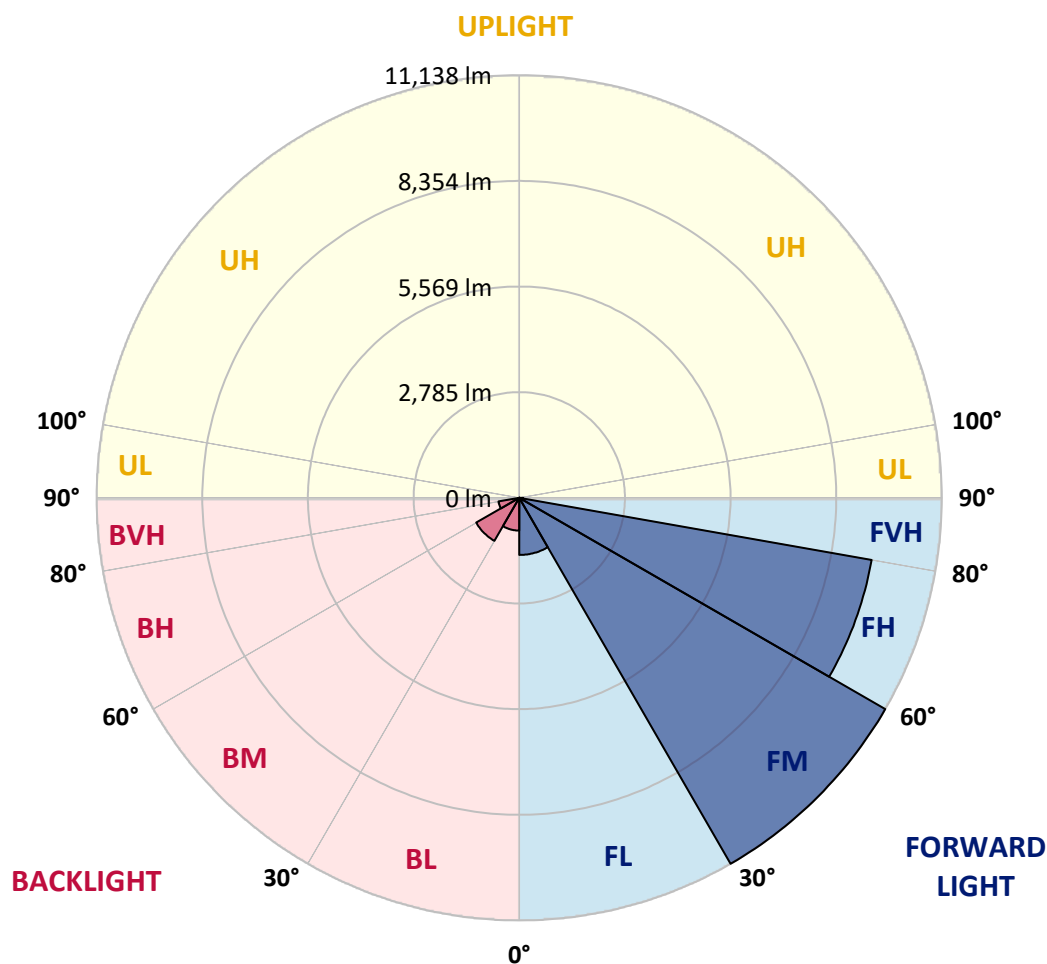
CATALOG NUMBER: GLEON-SA6B-750-U-T3-HSS

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

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |          |
|------|-------------|---------|-----------|-------------------------|------|----------|
|      |             |         |           | B                       | U    | G        |
| FL   | (0°-30°)    | 1505.4  | 6.0       |                         |      |          |
| FM   | (30°-60°)   | 11138.2 | 44.7      |                         |      |          |
| FH   | (60°-80°)   | 9430.6  | 37.9      |                         |      | G4/12000 |
| FVH  | (80°-90°)   | 101.6   | 0.4       |                         |      | G2/225   |
| BL   | (0°-30°)    | 863.1   | 3.5       | B2/1000                 |      |          |
| BM   | (30°-60°)   | 1309.9  | 5.3       | B2/2500                 |      |          |
| BH   | (60°-80°)   | 556.2   | 2.2       | B2/1000                 |      | G2/1000  |
| BVH  | (80°-90°)   | 1.9     | 0.0       |                         |      | G0/10    |
| UL   | (90°-100°)  | 0.0     | 0.0       |                         | U0/0 |          |
| UH   | (100°-180°) | 0.0     | 0.0       |                         | U0/0 |          |

**BUG Rating: B2-U0-G4**

Type III Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 45°     | 55°     | 57°     | 65°     | 75°     | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 2959.6  | 2959.6  | 2959.6  | 2959.6  | 2959.6  | 2959.6  | 2959.6  | 2959.6  | 2959.6  | 2959.6  | 2959.6  |
| 2.5°  | 2890.1  | 2903.1  | 2912.5  | 2918.4  | 2925.5  | 2940.8  | 2945.5  | 2952.5  | 2956.1  | 2956.1  | 2964.3  |
| 5°    | 2775.9  | 2790.0  | 2810.0  | 2826.5  | 2859.5  | 2901.9  | 2932.5  | 2944.3  | 2965.5  | 2984.3  | 2994.9  |
| 7.5°  | 2669.9  | 2686.4  | 2709.9  | 2748.8  | 2805.3  | 2873.6  | 2937.2  | 2953.7  | 2994.9  | 3035.0  | 3055.0  |
| 10°   | 2601.6  | 2614.5  | 2645.2  | 2700.5  | 2774.7  | 2870.1  | 2959.6  | 2979.6  | 3050.3  | 3117.4  | 3155.1  |
| 12.5° | 2578.0  | 2589.8  | 2621.6  | 2684.0  | 2775.9  | 2887.8  | 3011.4  | 3040.9  | 3144.5  | 3242.3  | 3295.3  |
| 15°   | 2612.2  | 2614.5  | 2648.7  | 2707.6  | 2798.3  | 2931.3  | 3097.4  | 3132.7  | 3263.5  | 3390.7  | 3456.6  |
| 17.5° | 2744.1  | 2733.5  | 2751.2  | 2777.1  | 2848.9  | 2989.1  | 3188.1  | 3241.1  | 3415.4  | 3565.0  | 3627.4  |
| 20°   | 3073.8  | 3073.8  | 3033.8  | 2963.1  | 2964.3  | 3078.6  | 3310.6  | 3370.6  | 3583.8  | 3756.9  | 3813.5  |
| 22.5° | 3638.0  | 3627.4  | 3547.3  | 3374.2  | 3215.2  | 3232.8  | 3460.1  | 3537.9  | 3786.4  | 3971.3  | 3990.1  |
| 25°   | 4316.3  | 4303.4  | 4179.7  | 3935.9  | 3660.4  | 3482.5  | 3662.7  | 3752.2  | 4027.8  | 4191.5  | 4152.6  |
| 27.5° | 5034.7  | 5024.1  | 4901.7  | 4599.0  | 4206.8  | 3880.6  | 3904.1  | 3988.9  | 4273.9  | 4435.3  | 4311.6  |
| 30°   | 5730.8  | 5734.3  | 5613.0  | 5302.1  | 4858.1  | 4388.2  | 4210.3  | 4259.8  | 4513.0  | 4676.7  | 4500.1  |
| 32.5° | 6392.7  | 6397.4  | 6292.6  | 5945.1  | 5530.6  | 4978.2  | 4634.3  | 4621.4  | 4791.0  | 4952.3  | 4749.7  |
| 35°   | 6982.7  | 6994.5  | 6922.6  | 6652.9  | 6213.6  | 5635.4  | 5184.3  | 5153.7  | 5185.5  | 5368.0  | 5132.5  |
| 37.5° | 7551.5  | 7558.6  | 7504.4  | 7277.1  | 6909.7  | 6357.3  | 5879.2  | 5835.6  | 5767.3  | 5907.4  | 5637.7  |
| 40°   | 8174.5  | 8156.9  | 8094.5  | 7888.4  | 7572.7  | 7154.6  | 6625.8  | 6550.5  | 6431.5  | 6556.4  | 6302.0  |
| 42.5° | 8754.0  | 8734.0  | 8744.6  | 8511.4  | 8245.2  | 7974.3  | 7496.2  | 7366.6  | 7297.1  | 7440.8  | 7117.0  |
| 45°   | 9478.3  | 9467.7  | 9503.0  | 9300.4  | 9084.9  | 8888.2  | 8493.7  | 8352.4  | 8321.8  | 8490.2  | 8102.7  |
| 47.5° | 10193.2 | 10219.1 | 10328.6 | 10242.6 | 10155.5 | 9982.3  | 9550.1  | 9486.5  | 9505.4  | 9709.1  | 9142.6  |
| 50°   | 10789.1 | 10819.7 | 11120.0 | 11219.0 | 11345.0 | 11243.7 | 10810.3 | 10771.4 | 10845.6 | 11029.3 | 10261.5 |
| 52.5° | 11220.1 | 11282.5 | 11655.9 | 12111.7 | 12571.0 | 12639.3 | 12207.1 | 12171.7 | 12271.8 | 12300.1 | 11125.9 |
| 55°   | 11519.3 | 11574.6 | 11997.4 | 12831.3 | 13766.4 | 14060.8 | 13792.3 | 13655.7 | 13636.8 | 13357.7 | 12035.1 |
| 57.5° | 11572.3 | 11566.4 | 12174.1 | 13296.4 | 14703.8 | 15463.5 | 15293.9 | 15159.6 | 14773.3 | 14335.2 | 13077.4 |
| 60°   | 11273.1 | 11307.3 | 12012.7 | 13457.8 | 15292.7 | 16524.6 | 16537.5 | 16363.2 | 15761.4 | 15285.6 | 14087.9 |
| 62.5° | 10352.2 | 10491.1 | 11203.6 | 13035.0 | 15285.6 | 16952.1 | 17449.1 | 17316.0 | 16596.4 | 16064.1 | 15112.5 |
| 65°   | 8858.8  | 8908.3  | 9587.8  | 11586.4 | 14252.8 | 16773.1 | 18270.0 | 18220.5 | 17349.0 | 16820.2 | 15638.9 |
| 67.5° | 6469.2  | 6362.0  | 7075.7  | 9123.8  | 12066.9 | 15729.6 | 18858.8 | 18921.2 | 17929.6 | 16975.6 | 15078.3 |
| 68°   | 5903.9  | 5935.7  | 6491.6  | 8514.9  | 11494.5 | 15361.0 | 18897.7 | 18993.1 | 17987.3 | 16874.4 | 14772.1 |
| 70°   | 3519.0  | 3580.3  | 4076.1  | 5862.7  | 8744.6  | 13275.3 | 18478.4 | 18696.3 | 17643.4 | 15829.7 | 12777.1 |
| 72.5° | 898.6   | 971.6   | 1440.4  | 2624.0  | 4994.7  | 9353.4  | 15598.9 | 15967.5 | 15318.6 | 12841.8 | 8625.6  |
| 75°   | 369.8   | 388.6   | 514.7   | 864.4   | 1860.8  | 4213.9  | 10281.5 | 11070.6 | 10619.5 | 7688.2  | 3898.3  |
| 77.5° | 255.6   | 268.5   | 330.9   | 479.3   | 805.6   | 1428.6  | 5040.6  | 5610.7  | 5054.8  | 2624.0  | 850.3   |
| 80°   | 183.7   | 194.3   | 236.7   | 319.2   | 462.8   | 510.0   | 1642.9  | 1899.7  | 1508.7  | 575.9   | 210.8   |
| 82.5° | 109.5   | 117.8   | 176.7   | 227.3   | 281.5   | 243.8   | 408.7   | 464.0   | 436.9   | 286.2   | 94.2    |
| 85°   | 54.2    | 63.6    | 118.9   | 162.5   | 151.9   | 102.5   | 124.8   | 139.0   | 171.9   | 174.3   | 50.6    |
| 87.5° | 3.5     | 7.1     | 69.5    | 97.8    | 42.4    | 23.6    | 36.5    | 44.8    | 61.2    | 86.0    | 21.2    |
| 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: P322280

CATALOG NUMBER: GLEON-SA6B-750-U-T3-HSS

**CANDELA DISTRIBUTION (continued):**

|       | 90°     | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 2959.6  | 2959.6 | 2959.6 | 2959.6 | 2959.6 | 2959.6 | 2959.6 | 2959.6 | 2959.6 | 2959.6 | 2959.6 |
| 2.5°  | 2967.9  | 2969.0 | 2960.8 | 2957.3 | 2959.6 | 2945.5 | 2939.6 | 2941.9 | 2941.9 | 2945.5 | 2939.6 |
| 5°    | 2997.3  | 2997.3 | 2983.2 | 2964.3 | 2953.7 | 2926.6 | 2909.0 | 2904.3 | 2900.7 | 2898.4 | 2893.7 |
| 7.5°  | 3060.9  | 3053.8 | 3029.1 | 2987.9 | 2952.5 | 2893.7 | 2848.9 | 2825.3 | 2813.6 | 2808.9 | 2805.3 |
| 10°   | 3163.4  | 3150.4 | 3109.2 | 3032.6 | 2951.4 | 2846.5 | 2748.8 | 2679.3 | 2621.6 | 2598.0 | 2583.9 |
| 12.5° | 3301.1  | 3282.3 | 3212.8 | 3085.6 | 2943.1 | 2750.0 | 2538.0 | 2334.2 | 2144.6 | 2066.9 | 2028.0 |
| 15°   | 3460.1  | 3433.1 | 3323.5 | 3130.4 | 2894.8 | 2532.1 | 2071.6 | 1714.8 | 1452.1 | 1353.2 | 1310.8 |
| 17.5° | 3621.5  | 3586.2 | 3420.1 | 3158.6 | 2750.0 | 2081.0 | 1453.3 | 1097.6 | 922.2  | 875.0  | 858.6  |
| 20°   | 3784.0  | 3732.2 | 3503.7 | 3137.4 | 2422.6 | 1500.4 | 958.7  | 802.0  | 751.4  | 737.3  | 732.5  |
| 22.5° | 3938.3  | 3858.2 | 3579.1 | 3055.0 | 1918.5 | 1006.9 | 758.5  | 709.0  | 692.5  | 684.3  | 681.9  |
| 25°   | 4072.6  | 3960.7 | 3645.0 | 2800.6 | 1357.9 | 760.8  | 683.1  | 666.6  | 645.4  | 630.1  | 631.3  |
| 27.5° | 4198.6  | 4063.1 | 3685.1 | 2381.3 | 905.7  | 650.1  | 632.4  | 610.1  | 571.2  | 548.8  | 548.8  |
| 30°   | 4350.5  | 4199.7 | 3714.5 | 1832.5 | 666.6  | 574.7  | 560.6  | 526.4  | 473.4  | 444.0  | 444.0  |
| 32.5° | 4579.0  | 4407.0 | 3695.7 | 1286.1 | 552.4  | 505.2  | 472.3  | 425.2  | 367.4  | 339.2  | 338.0  |
| 35°   | 4928.8  | 4727.4 | 3561.4 | 843.2  | 487.6  | 439.3  | 386.3  | 328.6  | 277.9  | 254.4  | 253.2  |
| 37.5° | 5399.8  | 5156.1 | 3259.9 | 603.0  | 436.9  | 378.0  | 314.5  | 250.9  | 213.2  | 197.9  | 196.7  |
| 40°   | 6011.1  | 5654.2 | 2828.9 | 488.8  | 389.8  | 319.2  | 242.6  | 194.3  | 168.4  | 156.6  | 157.8  |
| 42.5° | 6744.8  | 6187.7 | 2311.9 | 421.6  | 343.9  | 262.6  | 189.6  | 153.1  | 136.6  | 128.4  | 126.0  |
| 45°   | 7559.8  | 6714.2 | 1770.1 | 375.7  | 298.0  | 212.0  | 148.4  | 121.3  | 108.4  | 103.6  | 103.6  |
| 47.5° | 8456.0  | 7226.5 | 1295.5 | 335.6  | 248.5  | 163.7  | 118.9  | 98.9   | 88.3   | 84.8   | 83.6   |
| 50°   | 9269.8  | 7582.2 | 933.9  | 293.3  | 203.7  | 129.5  | 96.6   | 82.4   | 75.4   | 70.7   | 70.7   |
| 52.5° | 9948.2  | 7694.0 | 687.8  | 247.3  | 164.9  | 103.6  | 80.1   | 70.7   | 63.6   | 60.1   | 60.1   |
| 55°   | 10545.3 | 7648.1 | 511.1  | 203.7  | 133.1  | 84.8   | 68.3   | 60.1   | 54.2   | 50.6   | 50.6   |
| 57.5° | 11117.7 | 7499.7 | 381.6  | 166.1  | 107.2  | 68.3   | 57.7   | 50.6   | 44.8   | 42.4   | 42.4   |
| 60°   | 11585.2 | 7252.4 | 283.8  | 134.3  | 86.0   | 55.4   | 48.3   | 41.2   | 36.5   | 33.0   | 33.0   |
| 62.5° | 11964.4 | 6979.2 | 208.5  | 110.7  | 68.3   | 43.6   | 37.7   | 34.2   | 27.1   | 23.6   | 23.6   |
| 65°   | 11966.8 | 6525.7 | 156.6  | 91.9   | 53.0   | 34.2   | 28.3   | 27.1   | 17.7   | 14.1   | 13.0   |
| 67.5° | 11101.2 | 5626.0 | 120.1  | 78.9   | 41.2   | 25.9   | 21.2   | 22.4   | 9.4    | 5.9    | 4.7    |
| 68°   | 10786.7 | 5397.5 | 113.1  | 77.7   | 38.9   | 24.7   | 20.0   | 22.4   | 8.2    | 4.7    | 3.5    |
| 70°   | 9094.3  | 4294.0 | 90.7   | 75.4   | 34.2   | 18.8   | 16.5   | 22.4   | 7.1    | 3.5    | 2.4    |
| 72.5° | 5816.8  | 2492.1 | 67.1   | 60.1   | 25.9   | 14.1   | 10.6   | 20.0   | 7.1    | 2.4    | 1.2    |
| 75°   | 2475.6  | 772.6  | 45.9   | 42.4   | 15.3   | 10.6   | 7.1    | 13.0   | 4.7    | 1.2    | 0.0    |
| 77.5° | 521.7   | 174.3  | 27.1   | 25.9   | 10.6   | 7.1    | 4.7    | 3.5    | 1.2    | 0.0    | 0.0    |
| 80°   | 134.3   | 50.6   | 14.1   | 13.0   | 5.9    | 3.5    | 2.4    | 0.0    | 0.0    | 0.0    | 0.0    |
| 82.5° | 42.4    | 20.0   | 8.2    | 5.9    | 2.4    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 85°   | 21.2    | 11.8   | 4.7    | 2.4    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 87.5° | 11.8    | 3.5    | 1.2    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 90°   | 0.0     | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |



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 .

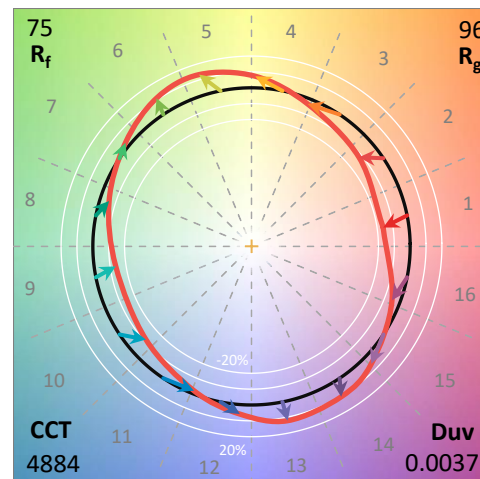
### Test Information

Test Method: LM-79-2008  
Report Number: SP1-1908-441-4-R4  
Test Lab: COOPER LIGHTING SOLUTIONS  
Photometer: SP1 - 76IN SPHERE  
Measurement Geometry:  $4\pi$   
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   | CRI (Ra): | 73.5 |      |       |
| CIE u':                   | 0.2101 | R1:       | 70.5 | R9:  | -28.4 |
| CIE v':                   | 0.4904 | R2:       | 77.7 | R10: | 48.6  |
| Duv:                      | 0.0037 | R3:       | 84.6 | R11: | 73.2  |
| CIE x:                    | 0.3493 | R4:       | 74.7 | R12: | 50.7  |
| CIE y:                    | 0.3624 | R5:       | 71.9 | R13: | 71.2  |
| CIE z:                    | 0.2884 | R6:       | 70.7 | R14: | 91.4  |
| Peak Wavelength (nm):     | 444    | R7:       | 81.2 |      |       |
| Dominant Wavelength (nm): | 571    | R8:       | 56.9 |      |       |
| Purity:                   | 13.7   |           |      |      |       |
| Rf:                       | 74.9   |           |      |      |       |
| Rg:                       | 96.3   |           |      |      |       |



### 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<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       | 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<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       | 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<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       | 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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**TM-30-18**

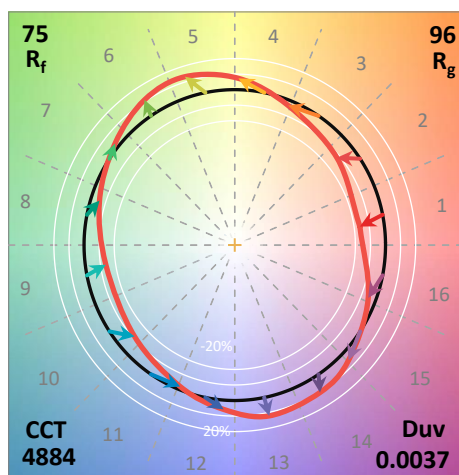
### Summary

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

### Spectral Power Distribution Comparison



### Color Vector Graphics



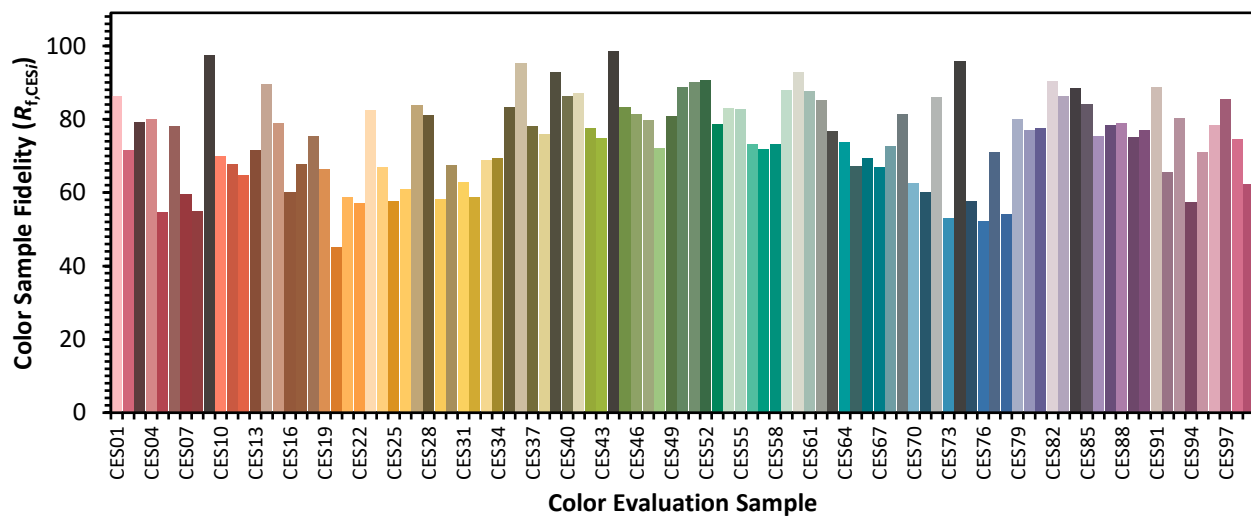


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**Individual Sample Fidelity Index ( $R_{f,i}$ )**

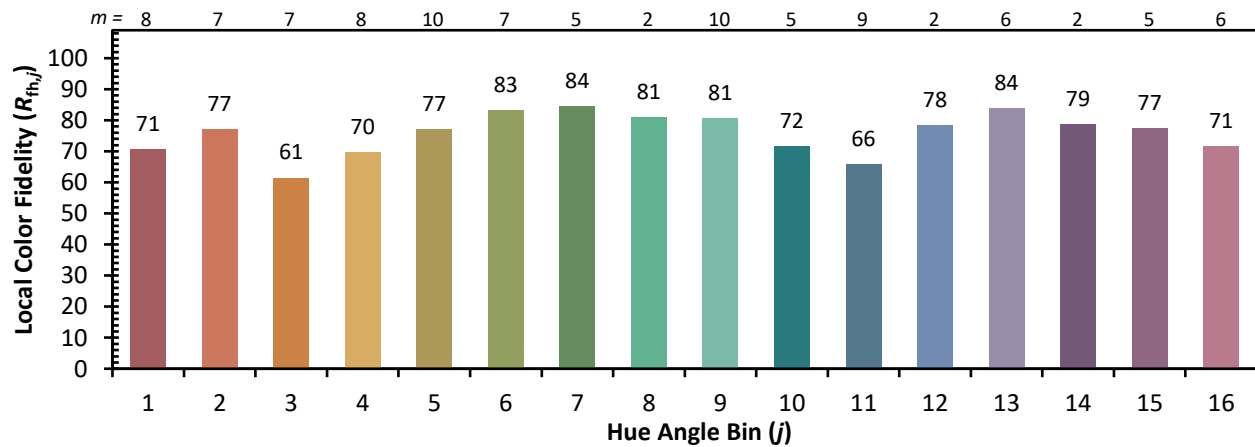
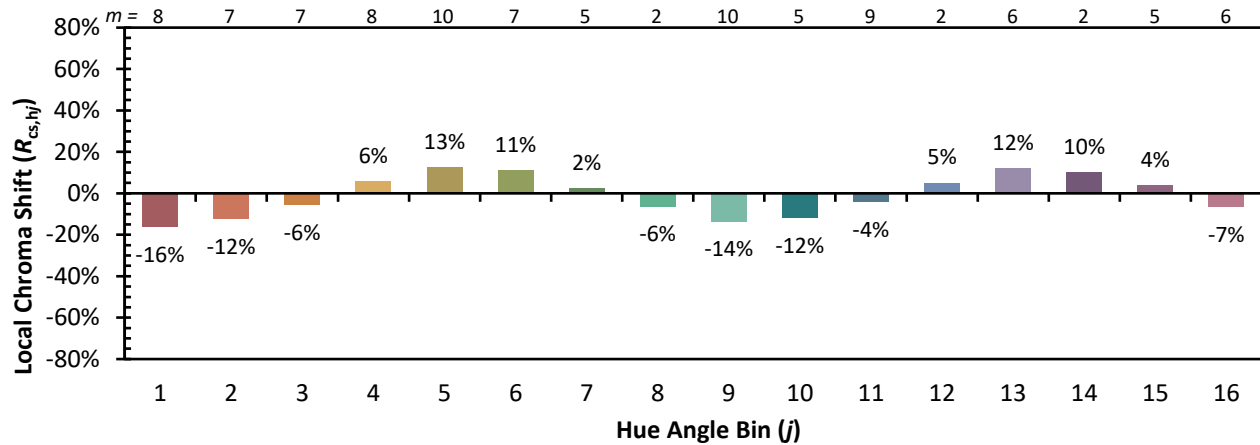
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 61 | CES51 = 90 | CES76 = 52 |
| CES02 = 60 | CES27 = 84 | CES52 = 91 | CES77 = 71 |
| CES03 = 30 | CES28 = 81 | CES53 = 79 | CES78 = 54 |
| CES04 = 69 | CES29 = 58 | CES54 = 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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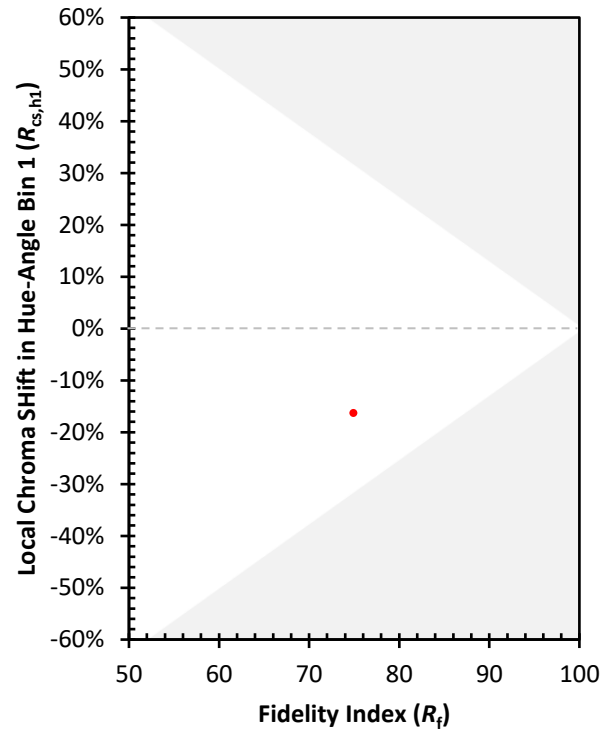
Color Rendition by Hue-Angle Bin



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**Measure Comparisons**



(END OF REPORT)