

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: P383316

Luminaire Tested: **GLEON-SA6B-735-U-T2R-HSS**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P383316  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-9)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: McGRAW-EDISON  
Catalog Number: GLEON-SA6B-735-U-T2R-HSS  
Description: GALLEON AREA AND ROADWAY LUMINAIRE  
(6) 70 CRI, 3500K, 800mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II  
ROADWAY OPTICS WITH HOUSE SIDE SHIELD  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 25699.5 lumens  
Efficiency: N/A  
Efficacy: 103.2 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1' x H: 0')  
IES Classification: Type II - Medium  
BUG Rating: B1 - U0 - G3

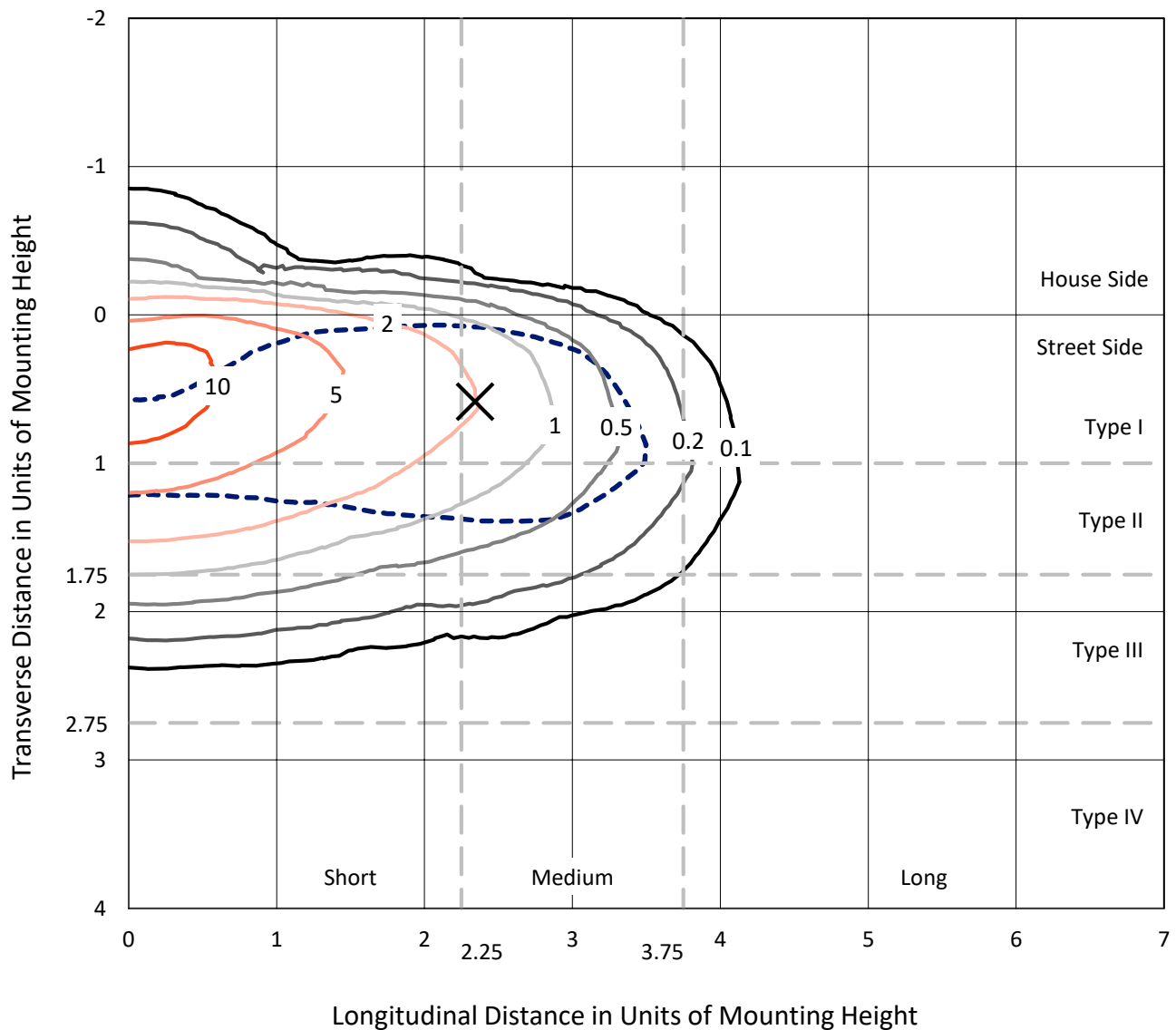
Input Watts (W): 249  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



REPORT NUMBER: P383316  
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## Iso-Footcandle Lines of Horizontal Illumination

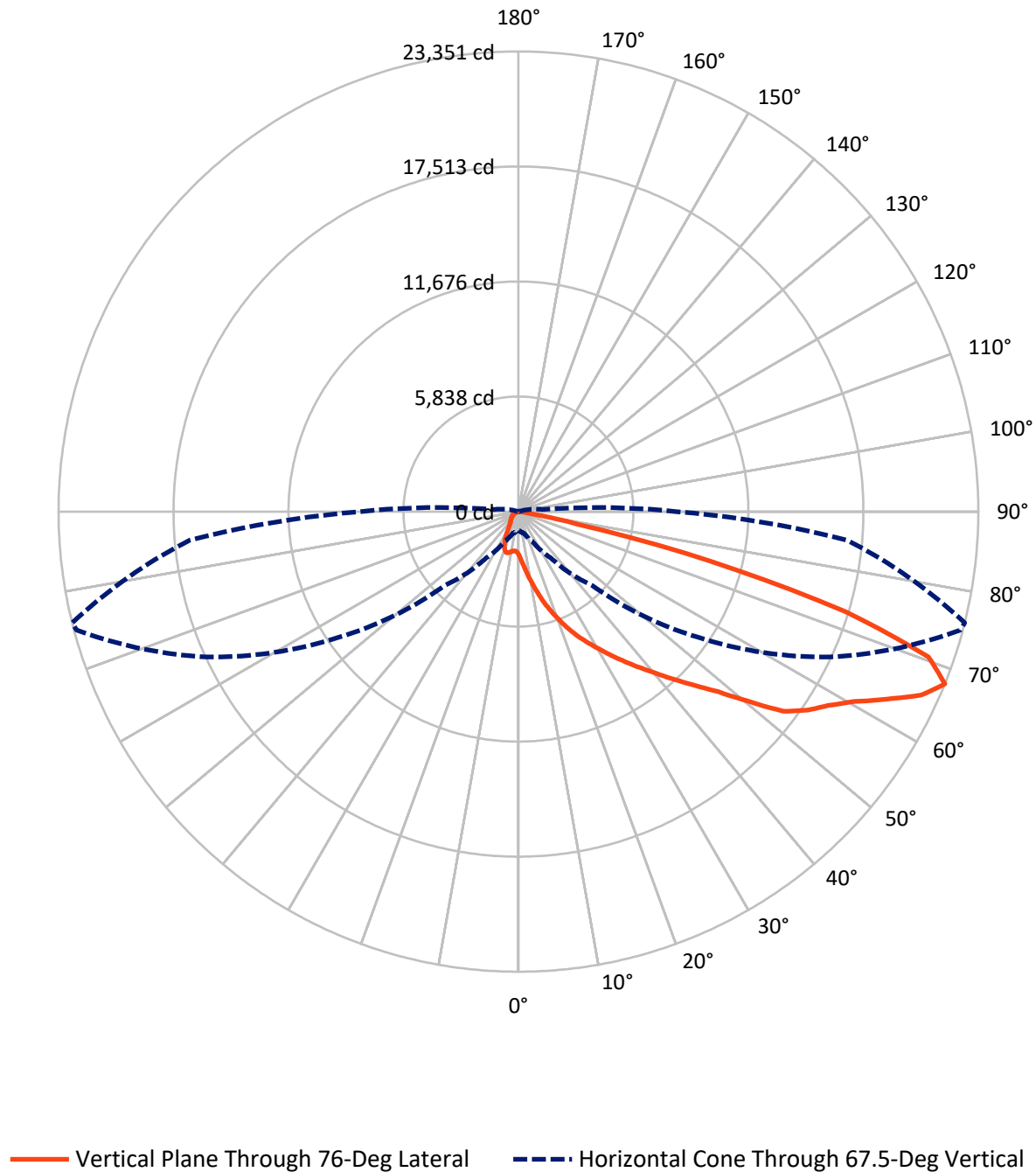
✕ Max cd  
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 12.3 fc  
 Type II - Medium - N/A

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## Luminous Intensity Polar Plot



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**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 1276.2   | 0.0    | 1276.2  |
|                    | % Fixture | 5.0      | 0.0    | 5.0     |
| <b>Street Side</b> | Lumens    | 24423.4  | 0.0    | 24423.4 |
|                    | % Fixture | 95.0     | 0.0    | 95.0    |
| <b>Total</b>       | Lumens    | 25699.5  | 0.0    | 25699.5 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 271.1   | 1.1       |
| 10°-20°   | 1074.6  | 4.2       |
| 20°-30°   | 2186.5  | 8.5       |
| 30°-40°   | 3795.1  | 14.8      |
| 40°-50°   | 5362.0  | 20.9      |
| 50°-60°   | 6080.7  | 23.7      |
| 60°-70°   | 5043.4  | 19.6      |
| 70°-80°   | 1826.9  | 7.1       |
| 80°-90°   | 59.2    | 0.2       |
| 90°-100°  | 0.0     | 0.0       |
| 100°-110° | 0.0     | 0.0       |
| 110°-120° | 0.0     | 0.0       |
| 120°-130° | 0.0     | 0.0       |
| 130°-140° | 0.0     | 0.0       |
| 140°-150° | 0.0     | 0.0       |
| 150°-160° | 0.0     | 0.0       |
| 160°-170° | 0.0     | 0.0       |
| 170°-180° | 0.0     | 0.0       |
| 0°-90°    | 25699.5 | 100.0     |
| 0°-180°   | 25699.5 | 100.0     |

**Coefficient of Utilization**



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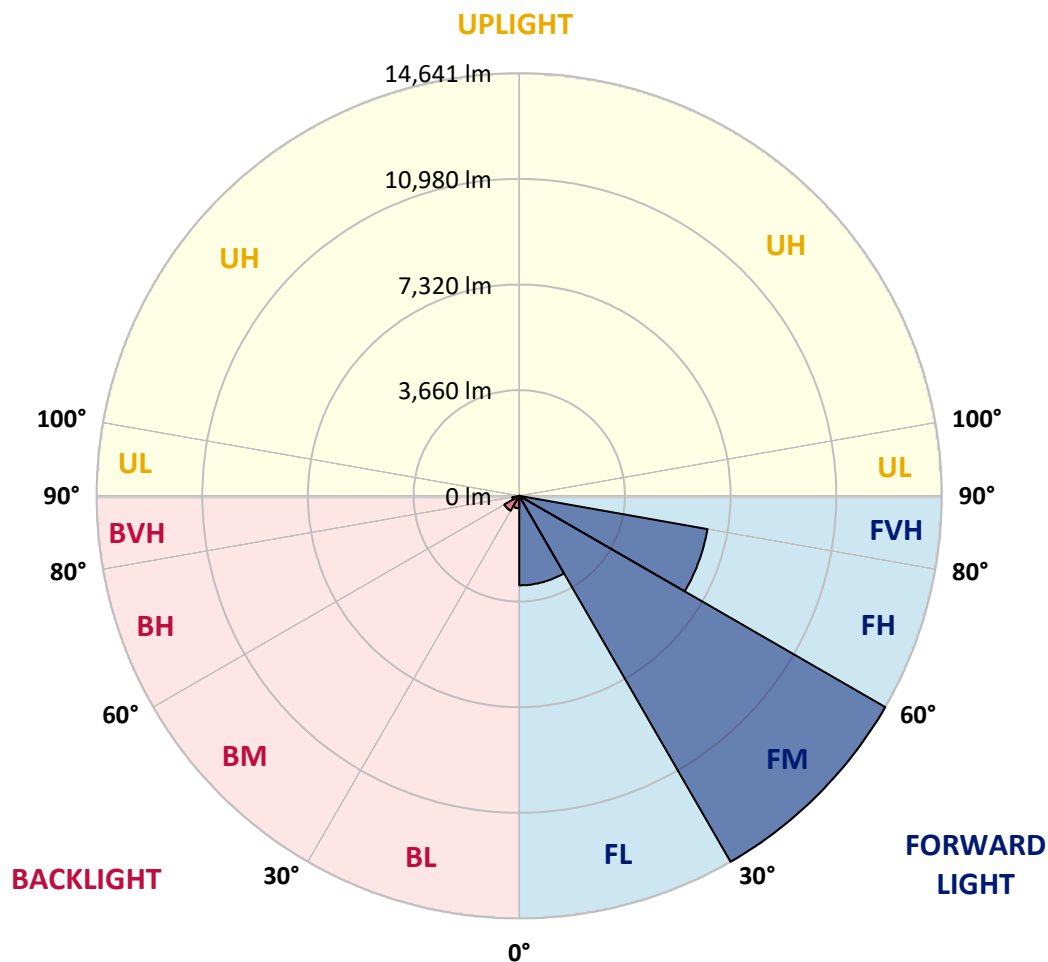
CATALOG NUMBER: GLEON-SA6B-735-U-T2R-HSS

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

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|---------|-----------|-------------------------|------|---------|
|      |             |         |           | B                       | U    | G       |
| FL   | (0°-30°)    | 3101.8  | 12.1      |                         |      |         |
| FM   | (30°-60°)   | 14640.5 | 57.0      |                         |      |         |
| FH   | (60°-80°)   | 6623.6  | 25.8      |                         |      | G3/7500 |
| FVH  | (80°-90°)   | 57.4    | 0.2       |                         |      | G1/100  |
| BL   | (0°-30°)    | 430.4   | 1.7       | B1/500                  |      |         |
| BM   | (30°-60°)   | 597.3   | 2.3       | B1/1000                 |      |         |
| BH   | (60°-80°)   | 246.6   | 1.0       | B1/500                  |      | G1/500  |
| 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: B1-U0-G3**

Type II Medium





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 45°     | 55°     | 65°     | 75°     | 76°     | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 2180.1  | 2180.1  | 2180.1  | 2180.1  | 2180.1  | 2180.1  | 2180.1  | 2180.1  | 2180.1  | 2180.1  | 2180.1  |
| 2.5°  | 3254.4  | 3181.1  | 3198.0  | 3150.8  | 3065.2  | 2889.5  | 2739.7  | 2597.8  | 2432.3  | 2426.7  | 2290.4  |
| 5°    | 4388.2  | 4326.4  | 4318.5  | 4222.7  | 4067.3  | 3768.9  | 3478.4  | 3147.3  | 2778.0  | 2751.0  | 2461.6  |
| 7.5°  | 5417.5  | 5367.9  | 5350.0  | 5236.2  | 4946.8  | 4656.2  | 4277.9  | 3791.5  | 3213.8  | 3164.3  | 2692.5  |
| 10°   | 6208.0  | 6184.4  | 6188.8  | 6107.8  | 5860.1  | 5589.8  | 5093.2  | 4472.7  | 3708.1  | 3631.5  | 2969.4  |
| 12.5° | 6807.1  | 6812.7  | 6853.2  | 6803.7  | 6665.2  | 6464.8  | 5934.3  | 5199.1  | 4255.4  | 4150.7  | 3285.8  |
| 15°   | 7247.3  | 7275.5  | 7349.8  | 7411.8  | 7401.6  | 7228.3  | 6741.8  | 5936.7  | 4836.5  | 4720.4  | 3638.3  |
| 17.5° | 7532.2  | 7563.8  | 7671.9  | 7809.3  | 7935.4  | 7894.9  | 7521.0  | 6648.3  | 5424.3  | 5290.3  | 4015.5  |
| 20°   | 7782.2  | 7819.4  | 7935.4  | 8116.7  | 8352.1  | 8402.7  | 8157.2  | 7338.5  | 6010.9  | 5847.7  | 4405.2  |
| 22.5° | 8323.8  | 8322.7  | 8393.7  | 8499.5  | 8723.7  | 8854.3  | 8698.9  | 7979.3  | 6590.9  | 6420.9  | 4802.7  |
| 25°   | 9303.6  | 9266.4  | 9241.6  | 9158.3  | 9207.9  | 9288.9  | 9202.2  | 8578.3  | 7174.1  | 7001.9  | 5205.8  |
| 27.5° | 10467.9 | 10490.4 | 10290.0 | 10065.9 | 9892.5  | 9809.2  | 9667.3  | 9133.5  | 7734.9  | 7545.8  | 5599.9  |
| 30°   | 11696.4 | 11703.2 | 11466.7 | 11180.7 | 10799.0 | 10482.5 | 10237.1 | 9663.9  | 8311.5  | 8105.4  | 5982.8  |
| 32.5° | 12804.5 | 12760.6 | 12526.3 | 12136.8 | 11654.8 | 11298.9 | 10788.8 | 10256.2 | 8921.8  | 8722.5  | 6408.5  |
| 35°   | 13682.9 | 13631.1 | 13346.1 | 12991.5 | 12491.5 | 12133.4 | 11519.7 | 10847.4 | 9563.6  | 9368.9  | 6835.2  |
| 37.5° | 14324.7 | 14263.9 | 13971.1 | 13606.3 | 13175.0 | 12966.7 | 12367.6 | 11490.4 | 10264.1 | 10054.7 | 7284.5  |
| 40°   | 14547.7 | 14494.7 | 14311.2 | 14044.3 | 13697.5 | 13650.2 | 13267.3 | 12230.2 | 11026.4 | 10803.4 | 7793.5  |
| 42.5° | 14414.8 | 14363.0 | 14297.7 | 14207.6 | 14063.5 | 14108.5 | 14116.4 | 13073.6 | 11873.2 | 11653.7 | 8355.4  |
| 45°   | 13887.8 | 13841.6 | 13909.2 | 14040.9 | 14220.0 | 14442.9 | 14891.1 | 13980.1 | 12819.1 | 12584.9 | 9005.2  |
| 47.5° | 13111.9 | 13078.2 | 13265.1 | 13593.9 | 14117.5 | 14732.3 | 15599.4 | 14932.8 | 13881.0 | 13663.7 | 9815.9  |
| 50°   | 12008.4 | 12002.7 | 12376.6 | 12976.8 | 13782.0 | 14872.0 | 16331.3 | 16016.0 | 15356.2 | 15127.6 | 10943.1 |
| 52.5° | 10290.0 | 10301.2 | 11036.6 | 11997.1 | 13192.9 | 14777.3 | 16802.0 | 17407.8 | 17072.3 | 16834.7 | 11919.4 |
| 55°   | 8653.8  | 8721.4  | 9242.7  | 10627.8 | 12289.9 | 14426.0 | 16964.2 | 18057.6 | 18019.3 | 17794.1 | 12462.2 |
| 57.5° | 7051.4  | 7174.1  | 7676.4  | 8970.2  | 10971.3 | 13616.4 | 16875.3 | 18339.1 | 18724.2 | 18552.0 | 13178.3 |
| 60°   | 5315.0  | 5371.3  | 5950.2  | 7159.5  | 9278.8  | 12139.0 | 16230.0 | 18492.2 | 19688.2 | 19568.7 | 14217.7 |
| 62.5° | 3381.6  | 3522.4  | 4035.8  | 5202.4  | 7224.8  | 10087.3 | 15142.2 | 18490.0 | 20894.1 | 20959.4 | 15558.9 |
| 65°   | 1781.4  | 1945.8  | 2218.4  | 3223.9  | 4964.9  | 7795.7  | 13506.0 | 18316.6 | 22373.8 | 22465.0 | 16607.3 |
| 67.5° | 960.5   | 1007.8  | 1152.0  | 1673.3  | 2879.3  | 5281.2  | 11101.9 | 17460.7 | 23230.7 | 23351.2 | 16753.6 |
| 70°   | 702.7   | 728.6   | 782.6   | 925.6   | 1449.2  | 3067.4  | 8100.9  | 15520.6 | 22126.1 | 22081.0 | 14885.5 |
| 72.5° | 539.4   | 579.9   | 620.5   | 677.9   | 833.3   | 1637.3  | 5043.7  | 12153.6 | 17654.5 | 17357.2 | 11126.7 |
| 75°   | 425.6   | 432.4   | 489.8   | 541.6   | 625.0   | 932.4   | 2239.7  | 7078.5  | 10775.3 | 10071.5 | 5770.0  |
| 77.5° | 340.1   | 344.6   | 378.4   | 423.4   | 502.2   | 612.6   | 693.6   | 2784.8  | 3440.1  | 3069.6  | 1252.2  |
| 80°   | 201.6   | 212.9   | 281.5   | 326.6   | 416.7   | 386.2   | 253.4   | 604.7   | 537.1   | 486.5   | 210.5   |
| 82.5° | 112.6   | 121.7   | 158.7   | 257.9   | 290.5   | 184.6   | 126.1   | 163.3   | 126.1   | 122.8   | 59.7    |
| 85°   | 0.0     | 5.6     | 102.5   | 159.9   | 118.2   | 40.5    | 52.9    | 54.0    | 37.2    | 34.9    | 23.7    |
| 87.5° | 0.0     | 0.0     | 31.5    | 30.4    | 4.5     | 6.8     | 12.4    | 18.0    | 14.6    | 14.6    | 12.4    |
| 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: P383316

CATALOG NUMBER: GLEON-SA6B-735-U-T2R-HSS

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 2180.1 | 2180.1 | 2180.1 | 2180.1 | 2180.1 | 2180.1 | 2180.1 | 2180.1 | 2180.1 | 2180.1 | 2180.1 |
| 2.5°  | 2222.9 | 2162.0 | 2047.2 | 1934.5 | 1840.0 | 1762.3 | 1692.4 | 1664.3 | 1641.8 | 1638.4 | 1620.4 |
| 5°    | 2322.0 | 2199.2 | 1979.6 | 1799.5 | 1678.9 | 1593.4 | 1520.2 | 1475.1 | 1440.3 | 1426.8 | 1414.4 |
| 7.5°  | 2471.7 | 2285.9 | 1970.6 | 1763.4 | 1619.3 | 1475.1 | 1340.0 | 1193.6 | 1102.4 | 1067.6 | 1047.2 |
| 10°   | 2654.2 | 2400.8 | 2004.4 | 1753.3 | 1501.0 | 1197.0 | 972.9  | 787.2  | 711.7  | 686.9  | 680.1  |
| 12.5° | 2866.9 | 2543.8 | 2062.9 | 1690.2 | 1248.8 | 850.2  | 671.2  | 608.1  | 591.2  | 583.3  | 583.3  |
| 15°   | 3111.3 | 2700.3 | 2104.6 | 1507.8 | 923.3  | 643.0  | 581.0  | 551.8  | 533.8  | 523.6  | 524.7  |
| 17.5° | 3361.3 | 2853.4 | 2084.3 | 1243.2 | 681.2  | 572.1  | 525.9  | 494.4  | 469.6  | 459.4  | 457.2  |
| 20°   | 3613.6 | 2995.3 | 1971.7 | 925.6  | 576.5  | 519.2  | 467.4  | 432.4  | 407.6  | 397.5  | 395.3  |
| 22.5° | 3874.8 | 3115.8 | 1773.6 | 679.0  | 518.0  | 460.6  | 409.9  | 374.9  | 351.3  | 342.3  | 337.8  |
| 25°   | 4129.3 | 3213.8 | 1496.5 | 549.5  | 462.8  | 405.4  | 357.0  | 324.3  | 302.9  | 293.9  | 292.8  |
| 27.5° | 4366.9 | 3275.7 | 1175.6 | 485.3  | 414.4  | 355.9  | 311.9  | 282.6  | 264.7  | 257.9  | 256.7  |
| 30°   | 4580.9 | 3281.4 | 869.3  | 438.0  | 371.6  | 313.0  | 272.5  | 246.6  | 230.8  | 224.1  | 221.8  |
| 32.5° | 4797.0 | 3234.1 | 632.9  | 395.3  | 332.2  | 275.9  | 236.5  | 216.2  | 204.9  | 199.4  | 199.4  |
| 35°   | 5000.8 | 3124.9 | 493.3  | 358.1  | 293.9  | 239.9  | 208.3  | 193.7  | 187.0  | 181.3  | 181.3  |
| 37.5° | 5200.2 | 2968.3 | 418.9  | 325.4  | 257.9  | 209.4  | 183.5  | 174.6  | 168.9  | 163.3  | 163.3  |
| 40°   | 5402.9 | 2771.3 | 380.6  | 295.0  | 228.6  | 185.8  | 163.3  | 155.4  | 149.8  | 145.2  | 144.1  |
| 42.5° | 5651.7 | 2543.8 | 355.9  | 266.9  | 202.7  | 164.4  | 144.1  | 135.2  | 130.6  | 126.1  | 123.9  |
| 45°   | 5940.0 | 2347.9 | 335.5  | 238.8  | 181.3  | 146.3  | 125.0  | 116.0  | 109.3  | 103.6  | 102.5  |
| 47.5° | 6355.5 | 2206.0 | 308.5  | 208.3  | 161.1  | 127.2  | 108.1  | 98.0   | 87.8   | 82.2   | 81.0   |
| 50°   | 6885.9 | 2088.8 | 273.6  | 181.3  | 140.8  | 108.1  | 90.1   | 77.7   | 68.7   | 63.1   | 63.1   |
| 52.5° | 7149.4 | 1935.7 | 242.1  | 157.6  | 118.2  | 91.2   | 73.2   | 58.6   | 54.0   | 48.4   | 48.4   |
| 55°   | 7255.3 | 1818.6 | 210.5  | 134.0  | 98.0   | 75.5   | 57.4   | 45.1   | 41.6   | 38.3   | 37.2   |
| 57.5° | 7552.5 | 1784.8 | 183.5  | 113.7  | 81.0   | 59.7   | 43.9   | 33.8   | 31.5   | 27.0   | 27.0   |
| 60°   | 8031.2 | 1801.7 | 158.7  | 96.9   | 65.3   | 46.2   | 32.7   | 25.9   | 23.7   | 19.1   | 19.1   |
| 62.5° | 8548.0 | 1780.3 | 134.0  | 83.4   | 50.7   | 33.8   | 22.5   | 19.1   | 19.1   | 11.3   | 10.2   |
| 65°   | 8647.1 | 1585.5 | 114.9  | 68.7   | 39.4   | 24.8   | 14.6   | 12.4   | 16.9   | 2.2    | 0.0    |
| 67.5° | 8025.5 | 1229.6 | 99.1   | 52.9   | 29.3   | 19.1   | 11.3   | 5.6    | 14.6   | 0.0    | 0.0    |
| 70°   | 6417.4 | 781.5  | 79.9   | 38.3   | 22.5   | 15.7   | 9.0    | 2.2    | 11.3   | 0.0    | 0.0    |
| 72.5° | 4538.0 | 453.8  | 63.1   | 27.0   | 19.1   | 12.4   | 6.8    | 0.0    | 6.8    | 0.0    | 0.0    |
| 75°   | 2295.0 | 242.1  | 39.4   | 20.3   | 14.6   | 9.0    | 4.5    | 0.0    | 1.1    | 0.0    | 0.0    |
| 77.5° | 496.6  | 112.6  | 24.8   | 14.6   | 10.2   | 5.6    | 2.2    | 0.0    | 0.0    | 0.0    | 0.0    |
| 80°   | 108.1  | 49.6   | 15.7   | 9.0    | 5.6    | 3.4    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 82.5° | 39.4   | 25.9   | 7.9    | 4.5    | 2.2    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 85°   | 21.4   | 13.5   | 4.5    | 2.2    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 87.5° | 11.3   | 4.5    | 1.1    | 1.1    | 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-79-08: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

All Brands

Data applicable to all product families using SA light engines

Report Number: SP1-2101-121-7

Luminaire Tested: IFLD-S-SA2A-735-U-T2

Test Date: 03/04/2021

### Test Information

Test Method: LM-79-08  
 Report Number: SP1-2101-121-7  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1  
 Measurement Geometry:  $4\pi$   
 Issue Date: 03/04/2021  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: STREETWORKS  
 Catalog Number: **IFLD-S-SA2A-735-U-T2**  
 Description: STREETWORKS INF FLOOD

PROGRAMMED @ 615mA.

### Spectral Parameters

|                           |        |           |      |      |       |
|---------------------------|--------|-----------|------|------|-------|
| CCT (K):                  | 3388   | CRI (Ra): | 73.1 |      |       |
| CIE u':                   | 0.2371 | R1:       | 68.9 | R9:  | -34.6 |
| CIE v':                   | 0.5177 | R2:       | 81.1 | R10: | 57.8  |
| Duv:                      | 0.0032 | R3:       | 93.1 | R11: | 68.6  |
| CIE x:                    | 0.4153 | R4:       | 71.6 | R12: | 53.9  |
| CIE y:                    | 0.4030 | R5:       | 69.4 | R13: | 70.9  |
| CIE z:                    | 0.1817 | R6:       | 75.0 | R14: | 96.2  |
| Peak Wavelength (nm):     | 590    | R7:       | 79.5 |      |       |
| Dominant Wavelength (nm): | 580    | R8:       | 46.4 |      |       |
| Purity:                   | 45.7   |           |      |      |       |
| Rf:                       | 76.9   |           |      |      |       |
| Rg:                       | 94.4   |           |      |      |       |



### Test Conditions

Stabilization Time: 81M  
 Operation Time: 12H  
 Room Temperature (°C) / RH%: 25.0/30%  
 Sphere Temperature (°C): 24.1

REPORT NUMBER: SP1-2101-121-7

| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | IN0058                | 1/31/2021        | 7/31/2021            |
| Power Meter                    | IN0071                | 12/1/2020        | 12/1/2021            |
| AC Power Source                | IN0063                | 12/1/2020        | 12/1/2021            |
| DC Power Source                | IN0208                | 12/1/2020        | 12/1/2021            |
| Sphere Thermometer             | IN0085                | 12/1/2020        | 12/1/2021            |
| Room Thermometer               | IN0046                | 12/1/2020        | 12/1/2021            |

REPORT NUMBER: SP1-2101-121-7

**CIE 1931 Chromaticity Diagram**



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



Point lies inside the ANSI 3500K 4-step quadrangle

REPORT NUMBER: SP1-2101-121-7

### Photopic Flux vs. Wavelength



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| 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       | 2672             | 0.0              | 490       | 34553            | 4.9              | 620       | 136720           | 35.6             | 750       | 5870             | 0.0              | 880       | 4216             | 0.0              |
| 365       | 2252             | 0.0              | 495       | 44336            | 8.0              | 625       | 126308           | 27.9             | 755       | 5421             | 0.0              | 885       | 4132             | 0.0              |
| 370       | 2217             | 0.0              | 500       | 54643            | 12.1             | 630       | 114625           | 20.7             | 760       | 5097             | 0.0              | 890       | 3992             | 0.0              |
| 375       | 2697             | 0.0              | 505       | 64676            | 18.1             | 635       | 103216           | 15.5             | 765       | 4626             | 0.0              | 895       | 3214             | 0.0              |
| 380       | 3039             | 0.0              | 510       | 73825            | 25.4             | 640       | 92605            | 11.1             | 770       | 3782             | 0.0              | 900       | 2580             | 0.0              |
| 385       | 2655             | 0.0              | 515       | 81872            | 33.9             | 645       | 83234            | 8.0              | 775       | 3506             | 0.0              | 905       | 1776             | 0.0              |
| 390       | 2357             | 0.0              | 520       | 88574            | 43.0             | 650       | 73263            | 5.4              | 780       | 3507             | 0.0              | 910       | 3995             | 0.0              |
| 395       | 2186             | 0.0              | 525       | 93289            | 50.1             | 655       | 64627            | 3.7              | 785       | 3267             | 0.0              | 915       | 4288             | 0.0              |
| 400       | 2015             | 0.0              | 530       | 98393            | 57.9             | 660       | 56614            | 2.4              | 790       | 2849             | 0.0              | 920       | 2446             | 0.0              |
| 405       | 2234             | 0.0              | 535       | 103269           | 64.0             | 665       | 49537            | 1.6              | 795       | 3037             | 0.0              | 925       | 3009             | 0.0              |
| 410       | 3412             | 0.0              | 540       | 107316           | 69.9             | 670       | 42866            | 0.9              | 800       | 2716             | 0.0              | 930       | 3026             | 0.0              |
| 415       | 6135             | 0.0              | 545       | 113101           | 75.3             | 675       | 36708            | 0.6              | 805       | 2648             | 0.0              | 935       | 4734             | 0.0              |
| 420       | 12146            | 0.0              | 550       | 120690           | 82.0             | 680       | 31814            | 0.4              | 810       | 3187             | 0.0              | 940       | 3719             | 0.0              |
| 425       | 23983            | 0.1              | 555       | 128583           | 87.8             | 685       | 27485            | 0.2              | 815       | 2931             | 0.0              | 945       | 1480             | 0.0              |
| 430       | 42142            | 0.3              | 560       | 137796           | 93.6             | 690       | 23698            | 0.1              | 820       | 2717             | 0.0              | 950       | 3450             | 0.0              |
| 435       | 68228            | 0.8              | 565       | 146577           | 97.5             | 695       | 20309            | 0.1              | 825       | 2236             | 0.0              | 955       | 5051             | 0.0              |
| 440       | 99323            | 1.6              | 570       | 154581           | 100.5            | 700       | 17890            | 0.1              | 830       | 2628             | 0.0              | 960       | 3176             | 0.0              |
| 445       | 115584           | 2.4              | 575       | 162633           | 101.2            | 705       | 15500            | 0.0              | 835       | 3140             | 0.0              | 965       | 5178             | 0.0              |
| 450       | 94997            | 2.5              | 580       | 168101           | 99.9             | 710       | 13699            | 0.0              | 840       | 3675             | 0.0              | 970       | 6385             | 0.0              |
| 455       | 61433            | 2.1              | 585       | 173145           | 96.2             | 715       | 12398            | 0.0              | 845       | 3283             | 0.0              | 975       | 3810             | 0.0              |
| 460       | 43373            | 1.8              | 590       | 174675           | 90.3             | 720       | 11147            | 0.0              | 850       | 3055             | 0.0              | 980       | 4322             | 0.0              |
| 465       | 32472            | 1.7              | 595       | 173724           | 82.3             | 725       | 9761             | 0.0              | 855       | 2932             | 0.0              | 985       | 4200             | 0.0              |
| 470       | 24257            | 1.5              | 600       | 171241           | 73.8             | 730       | 8651             | 0.0              | 860       | 3382             | 0.0              | 990       | 4661             | 0.0              |
| 475       | 21690            | 1.7              | 605       | 165134           | 64.0             | 735       | 7730             | 0.0              | 865       | 2605             | 0.0              | 995       | 6746             | 0.0              |
| 480       | 23173            | 2.2              | 610       | 156652           | 53.8             | 740       | 6847             | 0.0              | 870       | 3325             | 0.0              | 1000      | 4150             | 0.0              |
| 485       | 27564            | 3.3              | 615       | 147879           | 44.6             | 745       | 6124             | 0.0              | 875       | 3325             | 0.0              |           |                  |                  |

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### Scotopic Flux vs. Wavelength


**Scotopic Lumens: 12126**
**S/P: 1.36**

| 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       | 2672             | 0.0              | 490       | 34553            | 53.2             | 620       | 136720           | 1.7              | 750       | 5870             | 0.0              | 880       | 4216             | 0.0              |
| 365       | 2252             | 0.0              | 495       | 44336            | 71.7             | 625       | 126308           | 1.1              | 755       | 5421             | 0.0              | 885       | 4132             | 0.0              |
| 370       | 2217             | 0.0              | 500       | 54643            | 91.4             | 630       | 114625           | 0.6              | 760       | 5097             | 0.0              | 890       | 3992             | 0.0              |
| 375       | 2697             | 0.0              | 505       | 64676            | 110.0            | 635       | 103216           | 0.4              | 765       | 4626             | 0.0              | 895       | 3214             | 0.0              |
| 380       | 3039             | 0.0              | 510       | 73825            | 125.1            | 640       | 92605            | 0.2              | 770       | 3782             | 0.0              | 900       | 2580             | 0.0              |
| 385       | 2655             | 0.0              | 515       | 81872            | 135.7            | 645       | 83234            | 0.1              | 775       | 3506             | 0.0              | 905       | 1776             | 0.0              |
| 390       | 2357             | 0.0              | 520       | 88574            | 140.8            | 650       | 73263            | 0.1              | 780       | 3507             | 0.0              | 910       | 3995             | 0.0              |
| 395       | 2186             | 0.0              | 525       | 93289            | 139.6            | 655       | 64627            | 0.1              | 785       | 3267             | 0.0              | 915       | 4288             | 0.0              |
| 400       | 2015             | 0.0              | 530       | 98393            | 135.7            | 660       | 56614            | 0.0              | 790       | 2849             | 0.0              | 920       | 2446             | 0.0              |
| 405       | 2234             | 0.1              | 535       | 103269           | 128.7            | 665       | 49537            | 0.0              | 795       | 3037             | 0.0              | 925       | 3009             | 0.0              |
| 410       | 3412             | 0.2              | 540       | 107316           | 118.6            | 670       | 42866            | 0.0              | 800       | 2716             | 0.0              | 930       | 3026             | 0.0              |
| 415       | 6135             | 0.6              | 545       | 113101           | 108.4            | 675       | 36708            | 0.0              | 805       | 2648             | 0.0              | 935       | 4734             | 0.0              |
| 420       | 12146            | 2.0              | 550       | 120690           | 98.7             | 680       | 31814            | 0.0              | 810       | 3187             | 0.0              | 940       | 3719             | 0.0              |
| 425       | 23983            | 5.9              | 555       | 128583           | 87.9             | 685       | 27485            | 0.0              | 815       | 2931             | 0.0              | 945       | 1480             | 0.0              |
| 430       | 42142            | 14.3             | 560       | 137796           | 77.0             | 690       | 23698            | 0.0              | 820       | 2717             | 0.0              | 950       | 3450             | 0.0              |
| 435       | 68228            | 30.5             | 565       | 146577           | 65.8             | 695       | 20309            | 0.0              | 825       | 2236             | 0.0              | 955       | 5051             | 0.0              |
| 440       | 99323            | 55.5             | 570       | 154581           | 54.6             | 700       | 17890            | 0.0              | 830       | 2628             | 0.0              | 960       | 3176             | 0.0              |
| 445       | 115584           | 77.4             | 575       | 162633           | 44.3             | 705       | 15500            | 0.0              | 835       | 3140             | 0.0              | 965       | 5178             | 0.0              |
| 450       | 94997            | 73.6             | 580       | 168101           | 34.6             | 710       | 13699            | 0.0              | 840       | 3675             | 0.0              | 970       | 6385             | 0.0              |
| 455       | 61433            | 53.7             | 585       | 173145           | 26.5             | 715       | 12398            | 0.0              | 845       | 3283             | 0.0              | 975       | 3810             | 0.0              |
| 460       | 43373            | 41.9             | 590       | 174675           | 19.5             | 720       | 11147            | 0.0              | 850       | 3055             | 0.0              | 980       | 4322             | 0.0              |
| 465       | 32472            | 34.3             | 595       | 173724           | 13.9             | 725       | 9761             | 0.0              | 855       | 2932             | 0.0              | 985       | 4200             | 0.0              |
| 470       | 24257            | 27.9             | 600       | 171241           | 9.7              | 730       | 8651             | 0.0              | 860       | 3382             | 0.0              | 990       | 4661             | 0.0              |
| 475       | 21690            | 27.1             | 605       | 165134           | 6.5              | 735       | 7730             | 0.0              | 865       | 2605             | 0.0              | 995       | 6746             | 0.0              |
| 480       | 23173            | 31.3             | 610       | 156652           | 4.2              | 740       | 6847             | 0.0              | 870       | 3325             | 0.0              | 1000      | 4150             | 0.0              |
| 485       | 27564            | 40.0             | 615       | 147879           | 2.7              | 745       | 6124             | 0.0              | 875       | 3325             | 0.0              |           |                  |                  |

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### Melanopic Flux vs. Wavelength



**Melanopic Lumens: 4490.7**

**M/P: 0.5**

| 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       | 2672             | 0.0              | 490       | 34553            | 28.8             | 620       | 136720           | 0.1              | 750       | 5870             | 0.0              | 880       | 4216             | 0.0              |
| 365       | 2252             | 0.0              | 495       | 44336            | 36.6             | 625       | 126308           | 0.1              | 755       | 5421             | 0.0              | 885       | 4132             | 0.0              |
| 370       | 2217             | 0.0              | 500       | 54643            | 43.9             | 630       | 114625           | 0.0              | 760       | 5097             | 0.0              | 890       | 3992             | 0.0              |
| 375       | 2697             | 0.0              | 505       | 64676            | 49.6             | 635       | 103216           | 0.0              | 765       | 4626             | 0.0              | 895       | 3214             | 0.0              |
| 380       | 3039             | 0.0              | 510       | 73825            | 53.0             | 640       | 92605            | 0.0              | 770       | 3782             | 0.0              | 900       | 2580             | 0.0              |
| 385       | 2655             | 0.0              | 515       | 81872            | 53.5             | 645       | 83234            | 0.0              | 775       | 3506             | 0.0              | 905       | 1776             | 0.0              |
| 390       | 2357             | 0.0              | 520       | 88574            | 51.6             | 650       | 73263            | 0.0              | 780       | 3507             | 0.0              | 910       | 3995             | 0.0              |
| 395       | 2186             | 0.0              | 525       | 93289            | 47.3             | 655       | 64627            | 0.0              | 785       | 3267             | 0.0              | 915       | 4288             | 0.0              |
| 400       | 2015             | 0.0              | 530       | 98393            | 42.5             | 660       | 56614            | 0.0              | 790       | 2849             | 0.0              | 920       | 2446             | 0.0              |
| 405       | 2234             | 0.0              | 535       | 103269           | 37.2             | 665       | 49537            | 0.0              | 795       | 3037             | 0.0              | 925       | 3009             | 0.0              |
| 410       | 3412             | 0.1              | 540       | 107316           | 31.4             | 670       | 42866            | 0.0              | 800       | 2716             | 0.0              | 930       | 3026             | 0.0              |
| 415       | 6135             | 0.4              | 545       | 113101           | 26.3             | 675       | 36708            | 0.0              | 805       | 2648             | 0.0              | 935       | 4734             | 0.0              |
| 420       | 12146            | 1.4              | 550       | 120690           | 21.7             | 680       | 31814            | 0.0              | 810       | 3187             | 0.0              | 940       | 3719             | 0.0              |
| 425       | 23983            | 3.7              | 555       | 128583           | 17.3             | 685       | 27485            | 0.0              | 815       | 2931             | 0.0              | 945       | 1480             | 0.0              |
| 430       | 42142            | 8.9              | 560       | 137796           | 13.6             | 690       | 23698            | 0.0              | 820       | 2717             | 0.0              | 950       | 3450             | 0.0              |
| 435       | 68228            | 18.2             | 565       | 146577           | 10.3             | 695       | 20309            | 0.0              | 825       | 2236             | 0.0              | 955       | 5051             | 0.0              |
| 440       | 99323            | 33.2             | 570       | 154581           | 7.6              | 700       | 17890            | 0.0              | 830       | 2628             | 0.0              | 960       | 3176             | 0.0              |
| 445       | 115584           | 45.6             | 575       | 162633           | 5.4              | 705       | 15500            | 0.0              | 835       | 3140             | 0.0              | 965       | 5178             | 0.0              |
| 450       | 94997            | 43.8             | 580       | 168101           | 3.8              | 710       | 13699            | 0.0              | 840       | 3675             | 0.0              | 970       | 6385             | 0.0              |
| 455       | 61433            | 32.2             | 585       | 173145           | 2.6              | 715       | 12398            | 0.0              | 845       | 3283             | 0.0              | 975       | 3810             | 0.0              |
| 460       | 43373            | 25.6             | 590       | 174675           | 1.7              | 720       | 11147            | 0.0              | 850       | 3055             | 0.0              | 980       | 4322             | 0.0              |
| 465       | 32472            | 21.2             | 595       | 173724           | 1.1              | 725       | 9761             | 0.0              | 855       | 2932             | 0.0              | 985       | 4200             | 0.0              |
| 470       | 24257            | 17.4             | 600       | 171241           | 0.7              | 730       | 8651             | 0.0              | 860       | 3382             | 0.0              | 990       | 4661             | 0.0              |
| 475       | 21690            | 16.6             | 605       | 165134           | 0.5              | 735       | 7730             | 0.0              | 865       | 2605             | 0.0              | 995       | 6746             | 0.0              |
| 480       | 23173            | 18.6             | 610       | 156652           | 0.3              | 740       | 6847             | 0.0              | 870       | 3325             | 0.0              | 1000      | 4150             | 0.0              |
| 485       | 27564            | 22.7             | 615       | 147879           | 0.2              | 745       | 6124             | 0.0              | 875       | 3325             | 0.0              |           |                  |                  |

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TM-30-18

### Summary

$R_f = 76.9$   
 $R_g = 94.4$   
 CIE  $R_a = 73.1$   
 $R_g = -34.6$

### Spectral Power Distribution Comparison



### Color Vector Graphics



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 68 | CES51 = 90 | CES76 = 63 |
| CES02 = 62 | CES27 = 88 | CES52 = 89 | CES77 = 80 |
| CES03 = 31 | CES28 = 87 | CES53 = 80 | CES78 = 65 |
| CES04 = 70 | CES29 = 67 | CES54 = 84 | CES79 = 87 |
| CES05 = 48 | CES30 = 74 | CES55 = 84 | CES80 = 86 |
| CES06 = 51 | CES31 = 71 | CES56 = 75 | CES81 = 75 |
| CES07 = 40 | CES32 = 67 | CES57 = 74 | CES82 = 94 |
| CES08 = 39 | CES33 = 74 | CES58 = 76 | CES83 = 91 |
| CES09 = 29 | CES34 = 78 | CES59 = 87 | CES84 = 89 |
| CES10 = 75 | CES35 = 89 | CES60 = 93 | CES85 = 80 |
| CES11 = 58 | CES36 = 98 | CES61 = 86 | CES86 = 66 |
| CES12 = 64 | CES37 = 86 | CES62 = 89 | CES87 = 79 |
| CES13 = 43 | CES38 = 82 | CES63 = 77 | CES88 = 79 |
| CES14 = 74 | CES39 = 95 | CES64 = 74 | CES89 = 70 |
| CES15 = 71 | CES40 = 91 | CES65 = 68 | CES90 = 77 |
| CES16 = 47 | CES41 = 89 | CES66 = 71 | CES91 = 88 |
| CES17 = 50 | CES42 = 88 | CES67 = 69 | CES92 = 60 |
| CES18 = 56 | CES43 = 82 | CES68 = 74 | CES93 = 77 |
| CES19 = 72 | CES44 = 99 | CES69 = 82 | CES94 = 52 |
| CES20 = 65 | CES45 = 87 | CES70 = 67 | CES95 = 69 |
| CES21 = 86 | CES46 = 82 | CES71 = 66 | CES96 = 78 |
| CES22 = 79 | CES47 = 82 | CES72 = 88 | CES97 = 85 |
| CES23 = 92 | CES48 = 72 | CES73 = 59 | CES98 = 76 |
| CES24 = 91 | CES49 = 82 | CES74 = 97 | CES99 = 63 |
| CES25 = 72 | CES50 = 88 | CES75 = 66 |            |



**Color Rendition by Hue-Angle Bin**


**Measure Comparisons**



(END OF REPORT)