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: P436912

Luminaire Tested: **TT-D6-830-U-CQ-HSS**

Issue Date: 12/2/2020

Report Generated By 670347003

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Peachtree City, GA 30269

Scaled Data Report

**Test Information**

| | |
|---|---|
| Test Method: | LM-79-08 |
| Report Number: | P436912 |
| | TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2010-017-3) |
| Test Lab: | INNOVATION CENTER |
| Issue Date: | 12/2/2020 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS (FORMERLY EATON) |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | TT-D6-830-U-CQ-HSS |
| Description: | TOPTIER LED PARKING GARAGE LUMINAIRE |
| | 3000K, 80 CRI LEDS AND CONCENTRATED DISTRIBUTION WITH HOUSE SIDE SHIELD |
| Light Source: | - |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 9334.2 lumens |
| Efficiency: | N/A |
| Efficacy: | 88.7 lumens/watt |
| Luminous Opening: | Circular (Dia: 1.12' x H: 0') |
| IES Classification: | Type IV - Short |
| BUG Rating: | B3 - U2 - G2 |

| | |
|---|---|
| Input Watts (W): | 105.2 |
| 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: | 28.75 FT |

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REPORT NUMBER: P436912
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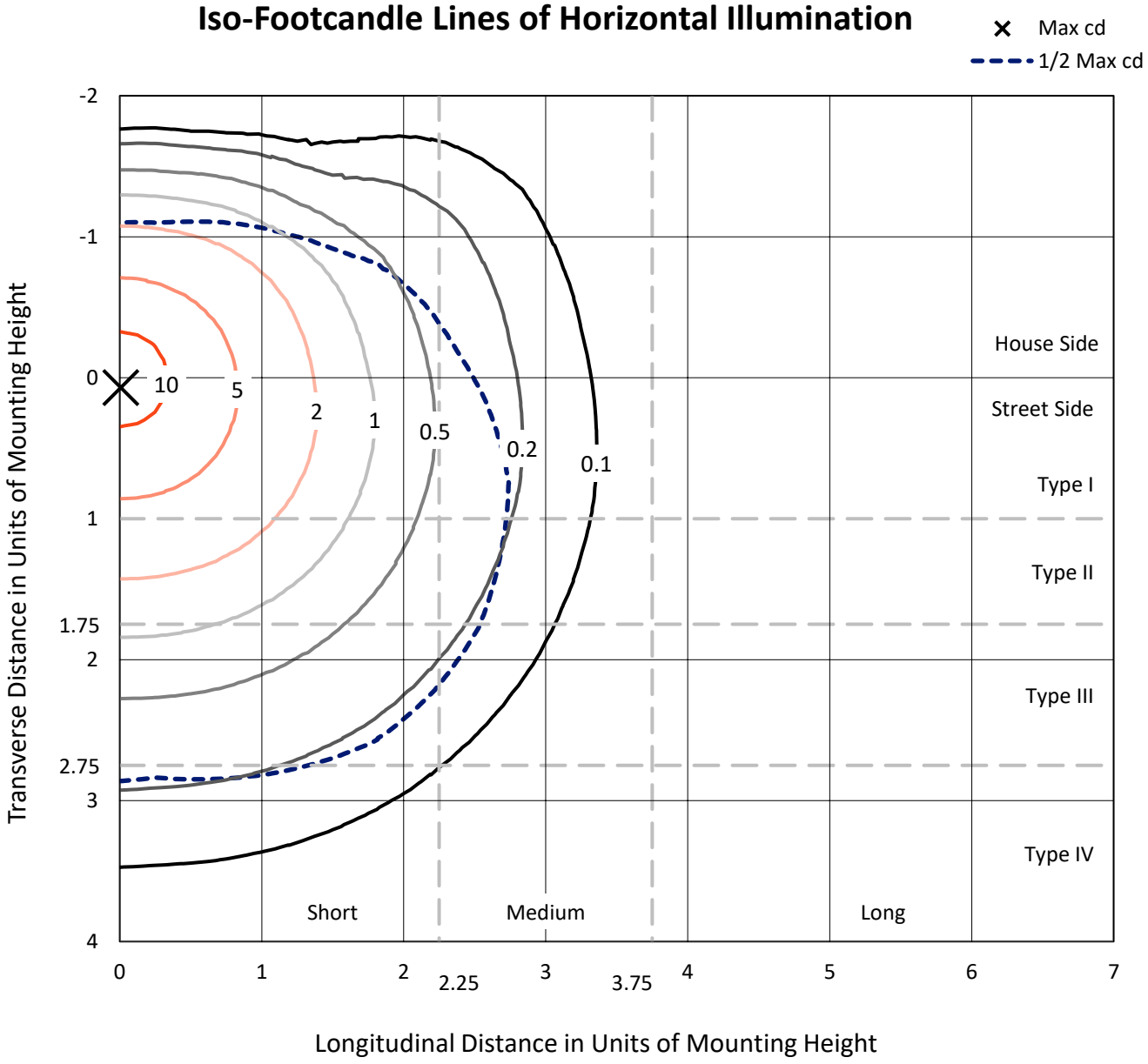
## Iso-Footcandle Lines of Horizontal Illumination




Based on 15 foot mounting height. Maximum calculated value = 12.1 fc
Type IV - Short - N/A

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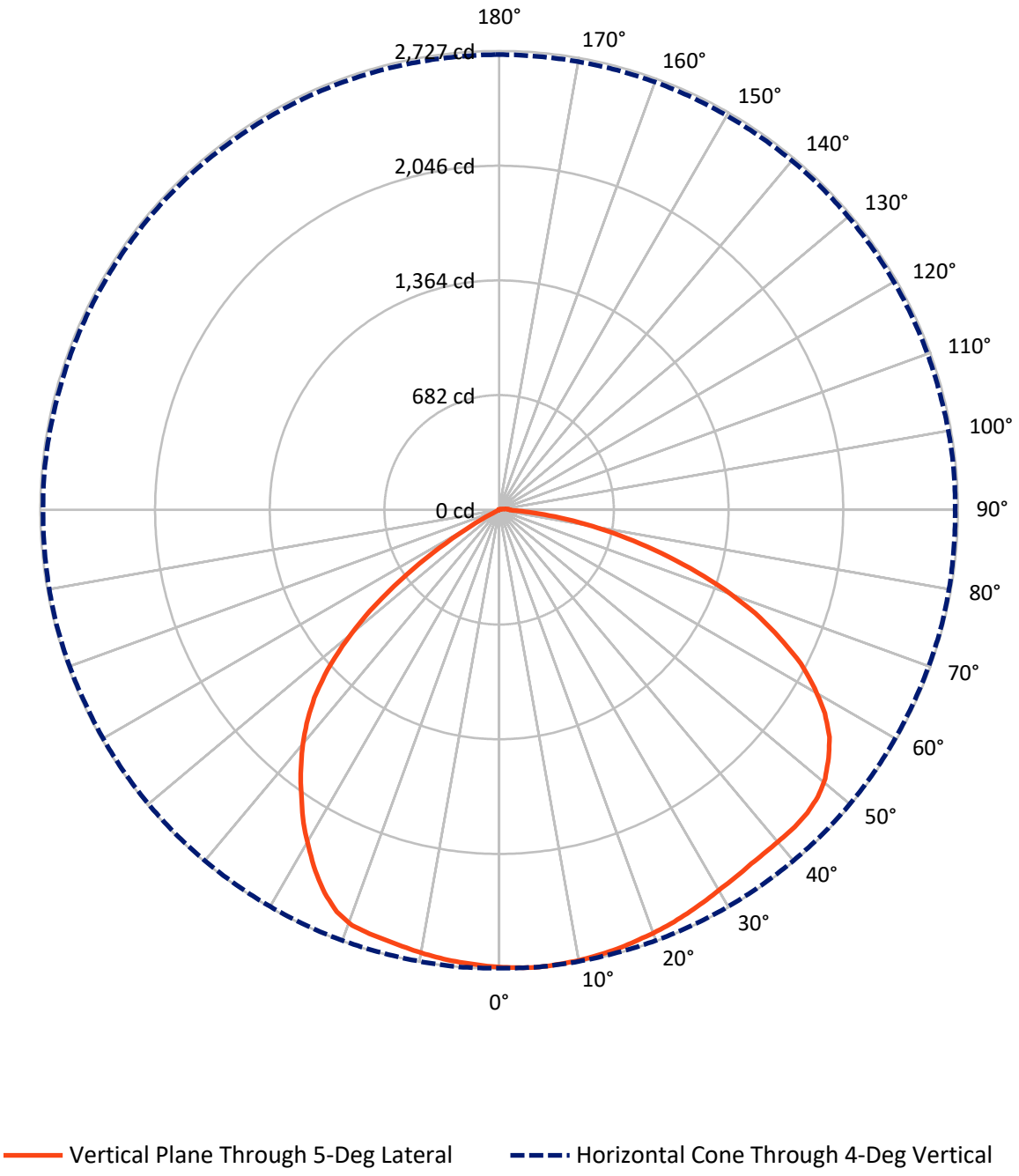
## Luminous Intensity Polar Plot



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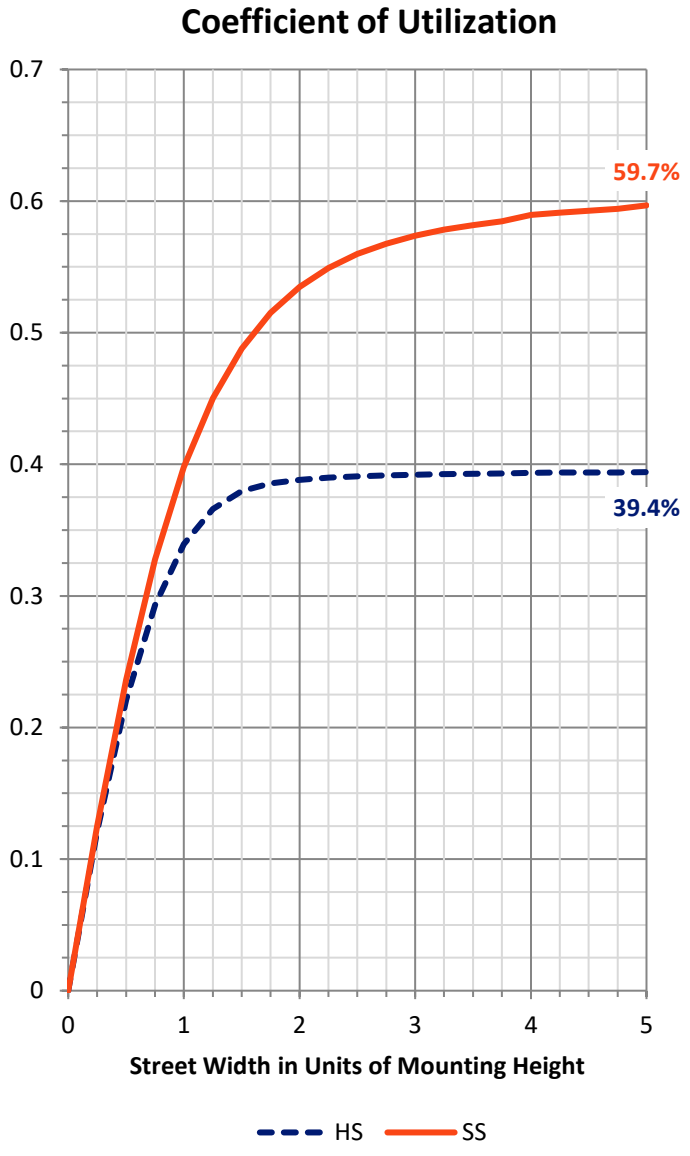
**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 3699.0 | 4.9 | 3703.9 |
| | % Fixture | 39.6 | 0.1 | 39.7 |
| **Street Side** | Lumens | 5604.2 | 26.1 | 5630.3 |
| | % Fixture | 60.0 | 0.3 | 60.3 |
| **Total** | Lumens | 9303.2 | 31.0 | 9334.2 |
| | % Fixture | 99.7 | 0.3 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 258.4 | 2.8 |
| 10°-20° | 756.6 | 8.1 |
| 20°-30° | 1192.2 | 12.8 |
| 30°-40° | 1517.3 | 16.3 |
| 40°-50° | 1752.4 | 18.8 |
| 50°-60° | 1715.9 | 18.4 |
| 60°-70° | 1278.0 | 13.7 |
| 70°-80° | 692.2 | 7.4 |
| 80°-90° | 140.3 | 1.5 |
| 90°-100° | 17.8 | 0.2 |
| 100°-110° | 7.0 | 0.1 |
| 110°-120° | 2.0 | 0.0 |
| 120°-130° | 1.4 | 0.0 |
| 130°-140° | 1.1 | 0.0 |
| 140°-150° | 0.8 | 0.0 |
| 150°-160° | 0.5 | 0.0 |
| 160°-170° | 0.3 | 0.0 |
| 170°-180° | 0.1 | 0.0 |
| 0°-90° | 9303.2 | 99.7 |
| 0°-180° | 9334.2 | 100.0 |



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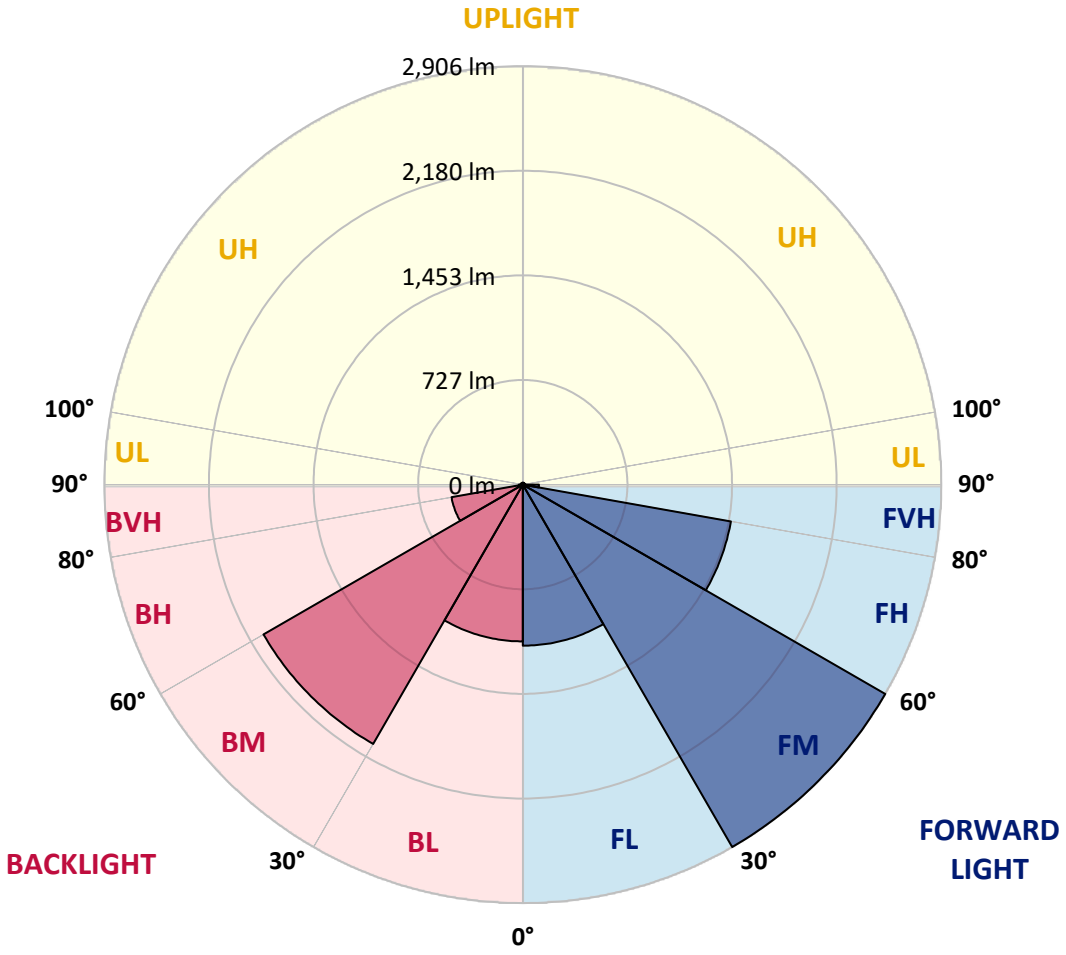
## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 1118.4 | 12.0 | | | |
| FM | (30°-60°) | 2906.2 | 31.1 | | | |
| FH | (60°-80°) | 1467.5 | 15.7 | | | G1/1800 |
| FVH | (80°-90°) | 112.0 | 1.2 | | | G2/225 |
| BL | (0°-30°) | 1088.7 | 11.7 | B3/2500 | | |
| BM | (30°-60°) | 2079.4 | 22.3 | B2/2500 | | |
| BH | (60°-80°) | 502.7 | 5.4 | B2/1000 | | G2/1000 |
| BVH | (80°-90°) | 28.3 | 0.3 | | | G1/100 |
| UL | (90°-100°) | 17.8 | 0.2 | | U2/50 | |
| UH | (100°-180°) | 13.2 | 0.1 | | U2/50 | |

**BUG Rating: B3-U2-G2**
Type IV Short



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**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 85° | 90° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 2718.6 | 2718.6 | 2718.6 | 2718.6 | 2718.6 | 2718.6 | 2718.6 | 2718.6 | 2718.6 | 2718.6 | 2718.6 |
| 2.5° | 2722.1 | 2725.6 | 2723.9 | 2723.9 | 2720.3 | 2722.1 | 2720.3 | 2720.3 | 2718.6 | 2716.8 | 2716.8 |
| 4° | 2723.9 | 2727.4 | 2723.9 | 2723.9 | 2722.1 | 2722.1 | 2720.3 | 2716.8 | 2718.6 | 2713.3 | 2711.6 |
| 5° | 2725.6 | 2727.4 | 2725.6 | 2725.6 | 2722.1 | 2720.3 | 2716.8 | 2716.8 | 2715.1 | 2711.6 | 2711.6 |
| 7.5° | 2722.1 | 2723.9 | 2723.9 | 2722.1 | 2718.6 | 2715.1 | 2713.3 | 2711.6 | 2709.8 | 2704.6 | 2704.6 |
| 10° | 2715.1 | 2718.6 | 2715.1 | 2715.1 | 2713.3 | 2709.8 | 2704.6 | 2702.8 | 2697.5 | 2694.0 | 2692.3 |
| 12.5° | 2708.1 | 2709.8 | 2708.1 | 2708.1 | 2704.6 | 2699.3 | 2697.5 | 2694.0 | 2687.0 | 2681.7 | 2681.7 |
| 15° | 2697.5 | 2701.0 | 2699.3 | 2697.5 | 2695.8 | 2690.5 | 2685.2 | 2680.0 | 2674.7 | 2669.5 | 2669.5 |
| 17.5° | 2685.2 | 2687.0 | 2688.8 | 2687.0 | 2683.5 | 2680.0 | 2674.7 | 2667.7 | 2662.4 | 2657.2 | 2655.4 |
| 20° | 2671.2 | 2674.7 | 2674.7 | 2674.7 | 2671.2 | 2667.7 | 2660.7 | 2653.7 | 2650.1 | 2643.1 | 2641.4 |
| 22.5° | 2657.2 | 2660.7 | 2658.9 | 2660.7 | 2658.9 | 2653.7 | 2646.6 | 2639.6 | 2632.6 | 2627.3 | 2623.8 |
| 25° | 2643.1 | 2643.1 | 2643.1 | 2643.1 | 2643.1 | 2636.1 | 2629.1 | 2620.3 | 2613.3 | 2604.5 | 2604.5 |
| 27.5° | 2625.6 | 2625.6 | 2627.3 | 2627.3 | 2625.6 | 2620.3 | 2611.5 | 2601.0 | 2590.5 | 2581.7 | 2578.2 |
| 30° | 2609.8 | 2608.0 | 2611.5 | 2615.0 | 2613.3 | 2608.0 | 2597.5 | 2585.2 | 2569.4 | 2557.1 | 2546.6 |
| 32.5° | 2590.5 | 2595.7 | 2599.2 | 2606.3 | 2608.0 | 2601.0 | 2588.7 | 2572.9 | 2557.1 | 2534.3 | 2515.0 |
| 35° | 2583.5 | 2583.5 | 2592.2 | 2602.8 | 2606.3 | 2602.8 | 2585.2 | 2567.7 | 2544.8 | 2511.5 | 2488.7 |
| 37.5° | 2576.4 | 2578.2 | 2592.2 | 2608.0 | 2613.3 | 2613.3 | 2594.0 | 2571.2 | 2539.6 | 2492.2 | 2464.1 |
| 40° | 2572.9 | 2576.4 | 2594.0 | 2616.8 | 2630.8 | 2629.1 | 2606.3 | 2578.2 | 2539.6 | 2478.2 | 2443.0 |
| 42.5° | 2569.4 | 2576.4 | 2595.7 | 2627.3 | 2648.4 | 2646.6 | 2622.1 | 2585.2 | 2536.1 | 2460.6 | 2420.2 |
| 45° | 2564.1 | 2569.4 | 2595.7 | 2636.1 | 2664.2 | 2669.5 | 2641.4 | 2594.0 | 2536.1 | 2444.8 | 2392.2 |
| 47.5° | 2548.4 | 2550.1 | 2585.2 | 2632.6 | 2674.7 | 2681.7 | 2653.7 | 2597.5 | 2529.0 | 2418.5 | 2357.1 |
| 50° | 2506.2 | 2511.5 | 2551.9 | 2615.0 | 2664.2 | 2674.7 | 2650.1 | 2588.7 | 2511.5 | 2374.6 | 2300.9 |
| 52.5° | 2451.8 | 2451.8 | 2501.0 | 2571.2 | 2630.8 | 2648.4 | 2625.6 | 2557.1 | 2467.6 | 2309.7 | 2225.4 |
| 55° | 2371.1 | 2383.4 | 2434.3 | 2508.0 | 2572.9 | 2597.5 | 2565.9 | 2499.2 | 2395.7 | 2227.2 | 2134.2 |
| 57.5° | 2279.8 | 2283.3 | 2336.0 | 2423.7 | 2490.4 | 2506.2 | 2479.9 | 2400.9 | 2300.9 | 2128.9 | 2018.3 |
| 60° | 2148.2 | 2155.2 | 2221.9 | 2299.1 | 2371.1 | 2392.2 | 2358.8 | 2279.8 | 2174.5 | 2002.5 | 1890.2 |
| 62.5° | 2002.5 | 2013.1 | 2072.7 | 2151.7 | 2220.2 | 2253.5 | 2213.1 | 2130.6 | 2027.1 | 1851.6 | 1753.3 |
| 65° | 1827.0 | 1830.5 | 1895.5 | 1985.0 | 2053.4 | 2065.7 | 2030.6 | 1949.9 | 1846.3 | 1677.8 | 1590.1 |
| 67.5° | 1625.2 | 1642.7 | 1705.9 | 1772.6 | 1832.3 | 1846.3 | 1821.8 | 1728.7 | 1646.2 | 1497.1 | 1411.1 |
| 70° | 1430.4 | 1421.6 | 1474.3 | 1540.9 | 1595.4 | 1607.6 | 1579.6 | 1493.6 | 1416.3 | 1275.9 | 1209.2 |
| 72.5° | 1195.2 | 1188.2 | 1244.3 | 1295.2 | 1347.9 | 1340.9 | 1312.8 | 1244.3 | 1177.6 | 1058.3 | 996.9 |
| 75° | 958.3 | 951.2 | 995.1 | 1039.0 | 1065.3 | 1068.8 | 1049.5 | 998.6 | 926.7 | 833.7 | 786.3 |
| 77.5° | 726.6 | 733.6 | 752.9 | 789.8 | 814.3 | 824.9 | 791.5 | 740.6 | 695.0 | 623.0 | 587.9 |
| 80° | 517.7 | 519.5 | 526.5 | 552.8 | 570.4 | 570.4 | 554.6 | 514.2 | 463.3 | 412.4 | 394.9 |
| 82.5° | 326.4 | 333.5 | 333.5 | 359.8 | 359.8 | 345.7 | 338.7 | 312.4 | 286.1 | 245.7 | 221.1 |
| 85° | 179.0 | 175.5 | 186.0 | 187.8 | 186.0 | 175.5 | 165.0 | 149.2 | 131.6 | 103.5 | 93.0 |
| 87.5° | 79.0 | 77.2 | 77.2 | 77.2 | 75.5 | 68.4 | 57.9 | 45.6 | 31.6 | 19.3 | 14.0 |
| 90° | 61.4 | 61.4 | 59.7 | 56.2 | 50.9 | 45.6 | 36.9 | 28.1 | 17.6 | 7.0 | 3.5 |
| 92.5° | 56.2 | 56.2 | 54.4 | 52.7 | 47.4 | 42.1 | 33.3 | 24.6 | 15.8 | 7.0 | 3.5 |
| 95° | 49.1 | 47.4 | 47.4 | 43.9 | 40.4 | 35.1 | 29.8 | 21.1 | 14.0 | 5.3 | 3.5 |
| 97.5° | 40.4 | 38.6 | 38.6 | 36.9 | 33.3 | 28.1 | 24.6 | 17.6 | 12.3 | 5.3 | 3.5 |
| 100° | 29.8 | 31.6 | 29.8 | 28.1 | 26.3 | 22.8 | 19.3 | 14.0 | 8.8 | 3.5 | 3.5 |
| 102.5° | 22.8 | 22.8 | 21.1 | 21.1 | 19.3 | 17.6 | 14.0 | 10.5 | 7.0 | 3.5 | 1.8 |
| 105° | 15.8 | 15.8 | 15.8 | 14.0 | 14.0 | 12.3 | 10.5 | 7.0 | 5.3 | 3.5 | 1.8 |
| 107.5° | 8.8 | 8.8 | 8.8 | 8.8 | 8.8 | 8.8 | 7.0 | 5.3 | 3.5 | 1.8 | 1.8 |

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**CANDELA DISTRIBUTION (continued):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 85° | 90° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 110° | 5.3 | 5.3 | 5.3 | 5.3 | 5.3 | 5.3 | 3.5 | 3.5 | 1.8 | 1.8 | 1.8 |
| 112.5° | 1.8 | 1.8 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 1.8 | 1.8 | 1.8 | 1.8 |
| 115° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 117.5° | 0.0 | 0.0 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 120° | 0.0 | 0.0 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 122.5° | 0.0 | 0.0 | 0.0 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 125° | 0.0 | 0.0 | 0.0 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 127.5° | 0.0 | 0.0 | 0.0 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 130° | 0.0 | 0.0 | 0.0 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 132.5° | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 135° | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 137.5° | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 140° | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 142.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 145° | 1.8 | 1.8 | 0.0 | 0.0 | 0.0 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 147.5° | 1.8 | 1.8 | 0.0 | 0.0 | 0.0 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 150° | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 152.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 155° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 157.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 160° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 162.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 165° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 167.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 170° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 172.5° | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 175° | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 177.5° | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 180° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |

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**CANDELA DISTRIBUTION (continued):**

| | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 2718.6 | 2718.6 | 2718.6 | 2718.6 | 2718.6 | 2718.6 | 2718.6 | 2718.6 | 2718.6 | 2718.6 |
| 2.5° | 2715.1 | 2709.8 | 2713.3 | 2711.6 | 2713.3 | 2709.8 | 2709.8 | 2709.8 | 2711.6 | 2708.1 |
| 4° | *2713.3* | *2709.8* | *2709.8* | *2709.8* | *2709.8* | *2706.3* | *2706.3* | *2706.3* | *2704.6* | *2706.3* |
| 5° | 2709.8 | 2708.1 | 2706.3 | 2704.6 | 2706.3 | 2702.8 | 2701.0 | 2701.0 | 2701.0 | 2702.8 |
| 7.5° | 2702.8 | 2697.5 | 2697.5 | 2692.3 | 2694.0 | 2692.3 | 2690.5 | 2692.3 | 2690.5 | 2690.5 |
| 10° | 2690.5 | 2687.0 | 2685.2 | 2681.7 | 2681.7 | 2678.2 | 2676.5 | 2676.5 | 2676.5 | 2674.7 |
| 12.5° | 2678.2 | 2674.7 | 2673.0 | 2669.5 | 2667.7 | 2664.2 | 2662.4 | 2664.2 | 2660.7 | 2660.7 |
| 15° | 2664.2 | 2660.7 | 2658.9 | 2658.9 | 2655.4 | 2651.9 | 2650.1 | 2646.6 | 2646.6 | 2646.6 |
| 17.5° | 2651.9 | 2648.4 | 2650.1 | 2646.6 | 2644.9 | 2641.4 | 2641.4 | 2634.4 | 2634.4 | 2632.6 |
| 20° | 2639.6 | 2636.1 | 2636.1 | 2634.4 | 2634.4 | 2630.8 | 2625.6 | 2622.1 | 2620.3 | 2620.3 |
| 22.5° | 2623.8 | 2618.6 | 2609.8 | 2597.5 | 2590.5 | 2585.2 | 2583.5 | 2578.2 | 2576.4 | 2572.9 |
| 25° | 2599.2 | 2585.2 | 2565.9 | 2544.8 | 2523.8 | 2513.3 | 2509.7 | 2502.7 | 2502.7 | 2502.7 |
| 27.5° | 2569.4 | 2543.1 | 2516.8 | 2485.2 | 2453.6 | 2432.5 | 2418.5 | 2411.5 | 2407.9 | 2407.9 |
| 30° | 2530.8 | 2497.5 | 2460.6 | 2420.2 | 2385.1 | 2346.5 | 2321.9 | 2307.9 | 2300.9 | 2302.6 |
| 32.5° | 2495.7 | 2453.6 | 2411.5 | 2360.6 | 2313.2 | 2267.5 | 2225.4 | 2204.4 | 2195.6 | 2192.1 |
| 35° | 2460.6 | 2413.2 | 2362.3 | 2307.9 | 2246.5 | 2179.8 | 2123.6 | 2092.0 | 2074.5 | 2076.2 |
| 37.5° | 2434.3 | 2378.1 | 2321.9 | 2255.3 | 2185.1 | 2104.3 | 2032.4 | 1981.5 | 1960.4 | 1963.9 |
| 40° | 2406.2 | 2343.0 | 2281.6 | 2204.4 | 2121.9 | 2025.3 | 1932.3 | 1863.9 | 1839.3 | 1834.0 |
| 42.5° | 2379.9 | 2306.2 | 2236.0 | 2153.5 | 2049.9 | 1941.1 | 1827.0 | 1746.3 | 1709.4 | 1704.2 |
| 45° | 2346.5 | 2264.0 | 2188.6 | 2093.8 | 1979.7 | 1844.6 | 1711.2 | 1605.9 | 1567.3 | 1551.5 |
| 47.5° | 2302.6 | 2211.4 | 2127.1 | 2018.3 | 1893.7 | 1741.0 | 1574.3 | 1444.4 | 1395.3 | 1383.0 |
| 50° | 2237.7 | 2132.4 | 2046.4 | 1923.5 | 1772.6 | 1604.1 | 1418.1 | 1258.4 | 1193.4 | 1184.7 |
| 52.5° | 2151.7 | 2044.6 | 1948.1 | 1807.7 | 1623.4 | 1425.1 | 1214.5 | 1049.5 | 974.1 | 968.8 |
| 55° | 2048.2 | 1932.3 | 1827.0 | 1669.1 | 1453.2 | 1223.3 | 1003.9 | 795.0 | 721.3 | 712.6 |
| 57.5° | 1927.1 | 1807.7 | 1693.6 | 1498.8 | 1249.6 | 993.4 | 738.9 | 538.8 | 468.6 | 451.1 |
| 60° | 1793.7 | 1670.8 | 1542.7 | 1305.8 | 975.8 | 703.8 | 447.5 | 286.1 | 233.4 | 215.9 |
| 62.5° | 1663.8 | 1530.4 | 1395.3 | 1075.9 | 668.7 | 401.9 | 203.6 | 82.5 | 52.7 | 50.9 |
| 65° | 1511.1 | 1384.7 | 1246.1 | 867.0 | 423.0 | 180.8 | 59.7 | 1.8 | 0.0 | 0.0 |
| 67.5° | 1333.8 | 1226.8 | 1103.9 | 775.7 | 373.8 | 158.0 | 50.9 | 1.8 | 0.0 | 0.0 |
| 70° | 1144.3 | 1060.1 | 951.2 | 666.9 | 321.2 | 133.4 | 43.9 | 0.0 | 0.0 | 0.0 |
| 72.5° | 944.2 | 872.3 | 791.5 | 554.6 | 266.8 | 110.6 | 35.1 | 0.0 | 0.0 | 0.0 |
| 75° | 740.6 | 695.0 | 623.0 | 438.8 | 207.1 | 84.2 | 26.3 | 0.0 | 0.0 | 0.0 |
| 77.5° | 549.3 | 512.5 | 459.8 | 322.9 | 156.2 | 61.4 | 19.3 | 0.0 | 0.0 | 0.0 |
| 80° | 370.3 | 342.2 | 312.4 | 219.4 | 105.3 | 40.4 | 12.3 | 0.0 | 0.0 | 0.0 |
| 82.5° | 215.9 | 194.8 | 175.5 | 124.6 | 57.9 | 22.8 | 5.3 | 0.0 | 0.0 | 0.0 |
| 85° | 87.8 | 80.7 | 77.2 | 52.7 | 22.8 | 7.0 | 1.8 | 0.0 | 0.0 | 0.0 |
| 87.5° | 10.5 | 8.8 | 8.8 | 5.3 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 90° | 1.8 | 1.8 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 92.5° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 95° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 |
| 97.5° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 0.0 |
| 100° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 102.5° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 105° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 107.5° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

REPORT NUMBER: P436912
CATALOG NUMBER: TT-D6-830-U-CQ-HSS

**CANDELA DISTRIBUTION (continued):**

| | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|
| 110° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 112.5° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 115° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 117.5° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 120° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 122.5° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 125° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 127.5° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 130° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 132.5° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 135° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 137.5° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 0.0 | 0.0 |
| 140° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 0.0 | 0.0 |
| 142.5° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 0.0 | 0.0 | 0.0 |
| 145° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 |
| 147.5° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 0.0 | 0.0 | 0.0 | 1.8 |
| 150° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 152.5° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 155° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 157.5° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 160° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 162.5° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 165° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 167.5° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 170° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 172.5° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 175° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 177.5° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 180° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

# LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

Streetworks

Report Number: SP1-2407-176-7

Test Date: 09/27/2024

Luminaire Tested: MEM2-HTN-VA-30-830-U-WQ

Data in this report applies to families of products including MEM2-HTN-VA-30-830-U-WQ

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

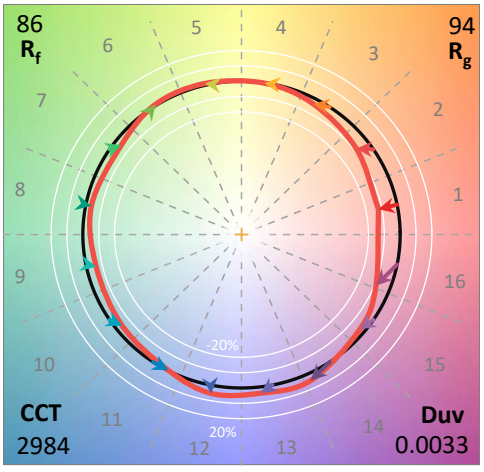
## Test Information

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | SP1-2407-176-7 |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Photometer: | SP1 - 76IN SPHERE |
| Measurement Geometry: | 4π |
| Issue Date: | 09/27/2024 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | Streetworks |
| Catalog Number: | **MEM2-HTN-VA-30-830-U-WQ** |
| Description: | EPIC MODERN VISUAL COMFORT 30W WAVESTREAM WIDE |

## Spectral Parameters

| | | | | | |
|---|---|---|---|---|---|
| CCT (K): | 2984 | CRI (Ra): | 81.8 | | |
| CIE u': | 0.2500 | R1: | 79.4 | R9: | -1.1 |
| CIE v': | 0.5264 | R2: | 89.9 | R10: | 78.4 |
| Duv: | 0.0033 | R3: | 96.6 | R11: | 80.8 |
| CIE x: | 0.4431 | R4: | 80.6 | R12: | 72.8 |
| CIE y: | 0.4147 | R5: | 80.1 | R13: | 81.7 |
| CIE z: | 0.1422 | R6: | 88.9 | R14: | 98.5 |
| Peak Wavelength (nm): | 601 | R7: | 82.6 | R15: | 70.2 |
| Dominant Wavelength (nm): | 581 | R8: | 56.0 | | |
| Purity: | 57.4798 | | | | |

| | |
|---|---|
| Rf: | 85.8 |
| Rg: | 94.1 |




## Test Conditions

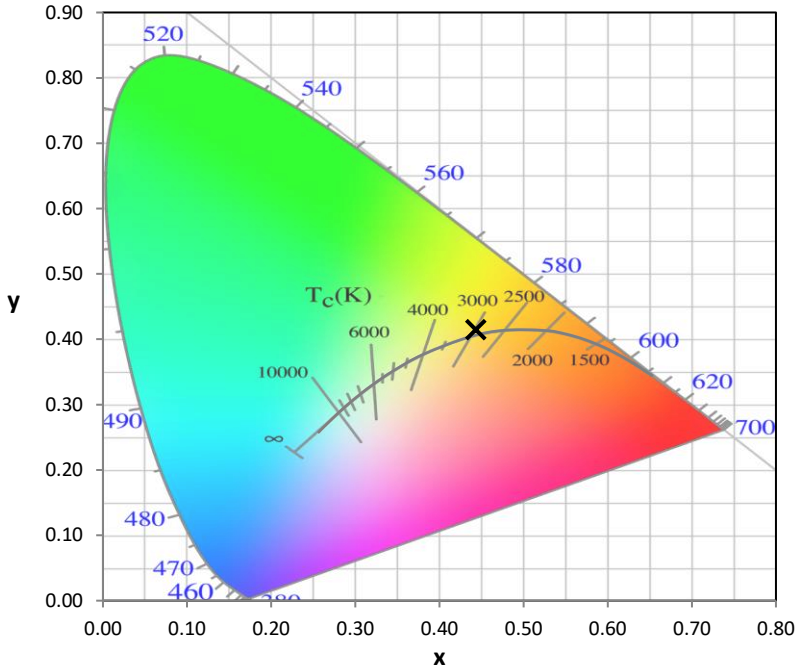
| | |
|---|---|
| Stabilization Time: | 29M |
| Operation Time: | 1H 29M |
| Sphere Temperature (°C): | 25.2 |

REPORT NUMBER: SP1-2407-176-7

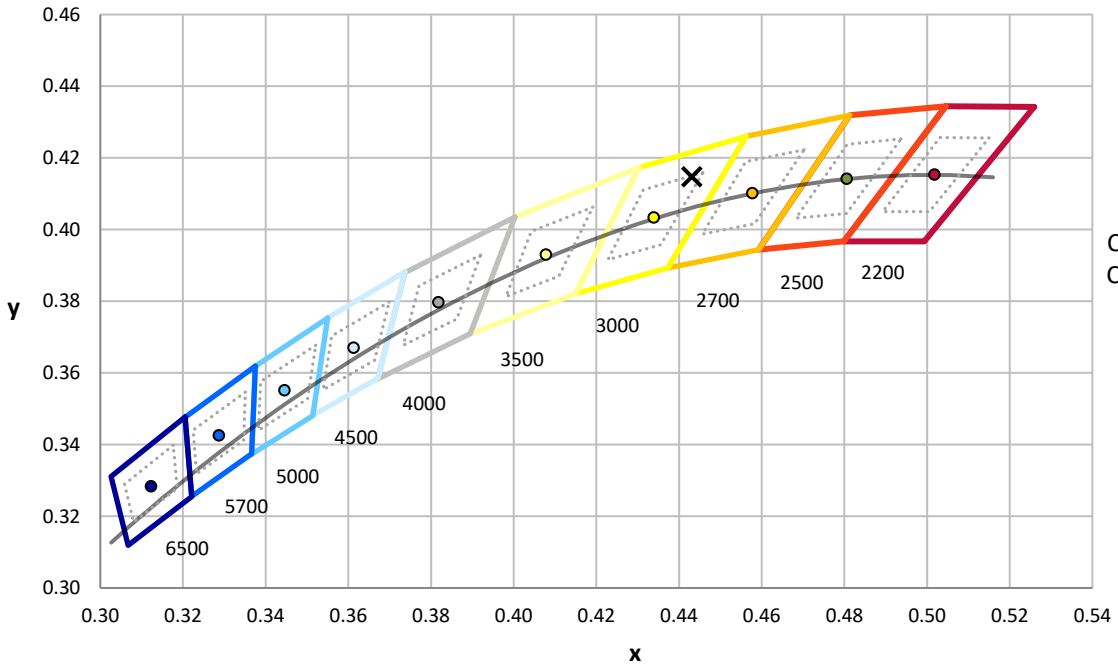
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 2/8/2024 | 2/8/2025 |
| AC Power Source | IN0063 | 10/24/2023 | 10/24/2024 |
| DC Power Source | IN0208 | 10/24/2023 | 10/24/2024 |
| Sphere Thermometer | IN0085 | 10/24/2023 | 10/24/2024 |
| Room Thermometer | IN0046 | 10/24/2023 | 10/24/2024 |

REPORT NUMBER: SP1-2407-176-7

## CIE 1931 Chromaticity Diagram




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

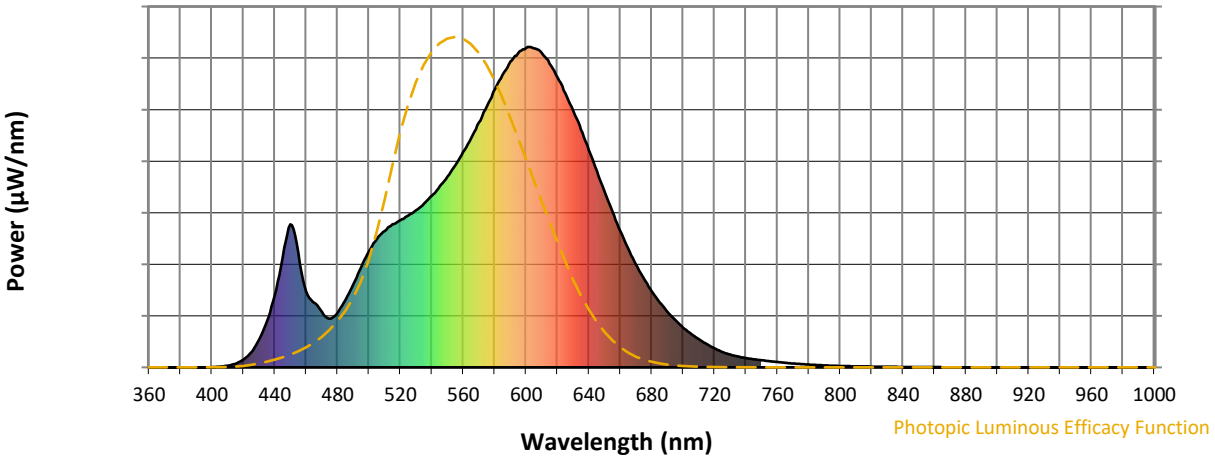



CCT = 2984K
CIE x = 0.4431
CIE y = 0.4147
Duv = 0.0033

Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2407-176-7

## Photopic Flux vs. Wavelength

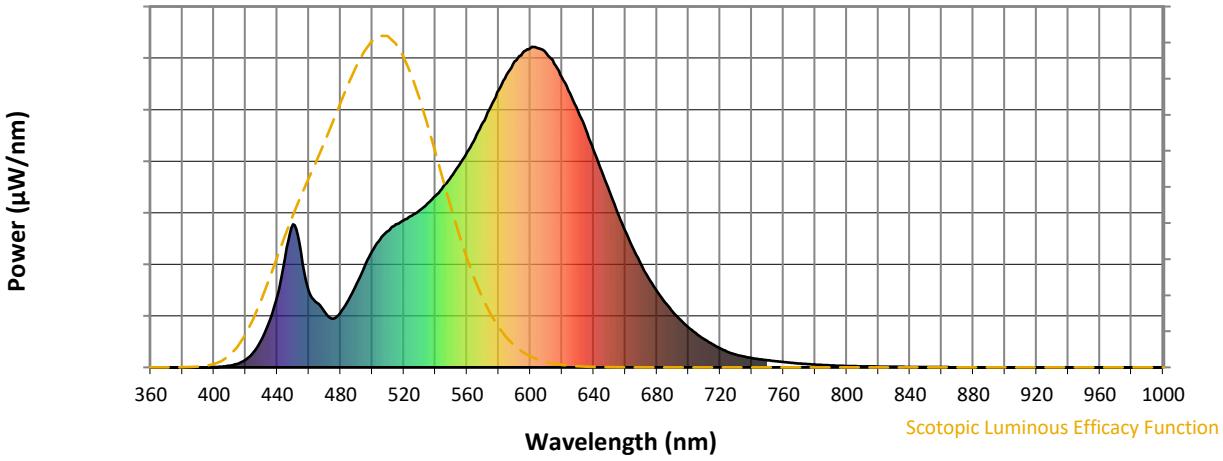



## Photopic Lumens: NR

| λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 0 | NR | 490 | 260 | NR | 620 | 905 | NR | 750 | 22 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 312 | NR | 625 | 856 | NR | 755 | 19 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 362 | NR | 630 | 801 | NR | 760 | 17 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 399 | NR | 635 | 742 | NR | 765 | 14 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 425 | NR | 640 | 677 | NR | 770 | 12 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 446 | NR | 645 | 613 | NR | 775 | 10 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 459 | NR | 650 | 549 | NR | 780 | 9 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 473 | NR | 655 | 485 | NR | 785 | 7 | NR | 915 | 0 | NR |
| 400 | 1 | NR | 530 | 490 | NR | 660 | 425 | NR | 790 | 6 | NR | 920 | 0 | NR |
| 405 | 2 | NR | 535 | 511 | NR | 665 | 371 | NR | 795 | 5 | NR | 925 | 0 | NR |
| 410 | 5 | NR | 540 | 535 | NR | 670 | 321 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 11 | NR | 545 | 565 | NR | 675 | 276 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 24 | NR | 550 | 595 | NR | 680 | 238 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 47 | NR | 555 | 631 | NR | 685 | 203 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 86 | NR | 560 | 672 | NR | 690 | 174 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 144 | NR | 565 | 715 | NR | 695 | 148 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 224 | NR | 570 | 763 | NR | 700 | 124 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 342 | NR | 575 | 814 | NR | 705 | 105 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 446 | NR | 580 | 866 | NR | 710 | 88 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 357 | NR | 585 | 912 | NR | 715 | 73 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 237 | NR | 590 | 954 | NR | 720 | 59 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 202 | NR | 595 | 981 | NR | 725 | 48 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 172 | NR | 600 | 996 | NR | 730 | 40 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 152 | NR | 605 | 996 | NR | 735 | 34 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 171 | NR | 610 | 980 | NR | 740 | 29 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 210 | NR | 615 | 947 | NR | 745 | 25 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2407-176-7

## Scotopic Flux vs. Wavelength

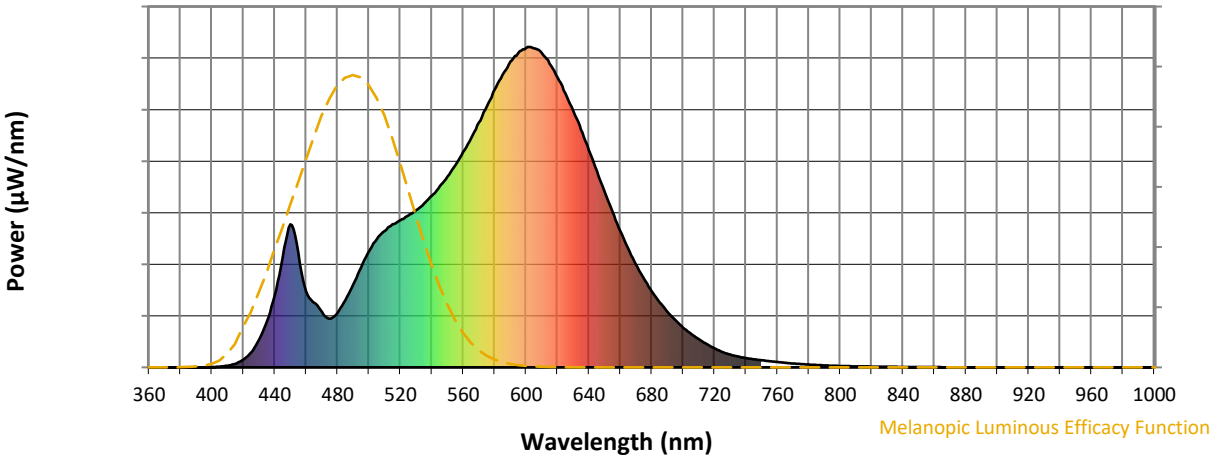



**Scotopic Lumens: NR** **S/P: 1.32**

| λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 0 | NR | 490 | 260 | NR | 620 | 905 | NR | 750 | 22 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 312 | NR | 625 | 856 | NR | 755 | 19 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 362 | NR | 630 | 801 | NR | 760 | 17 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 399 | NR | 635 | 742 | NR | 765 | 14 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 425 | NR | 640 | 677 | NR | 770 | 12 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 446 | NR | 645 | 613 | NR | 775 | 10 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 459 | NR | 650 | 549 | NR | 780 | 9 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 473 | NR | 655 | 485 | NR | 785 | 7 | NR | 915 | 0 | NR |
| 400 | 1 | NR | 530 | 490 | NR | 660 | 425 | NR | 790 | 6 | NR | 920 | 0 | NR |
| 405 | 2 | NR | 535 | 511 | NR | 665 | 371 | NR | 795 | 5 | NR | 925 | 0 | NR |
| 410 | 5 | NR | 540 | 535 | NR | 670 | 321 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 11 | NR | 545 | 565 | NR | 675 | 276 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 24 | NR | 550 | 595 | NR | 680 | 238 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 47 | NR | 555 | 631 | NR | 685 | 203 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 86 | NR | 560 | 672 | NR | 690 | 174 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 144 | NR | 565 | 715 | NR | 695 | 148 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 224 | NR | 570 | 763 | NR | 700 | 124 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 342 | NR | 575 | 814 | NR | 705 | 105 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 446 | NR | 580 | 866 | NR | 710 | 88 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 357 | NR | 585 | 912 | NR | 715 | 73 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 237 | NR | 590 | 954 | NR | 720 | 59 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 202 | NR | 595 | 981 | NR | 725 | 48 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 172 | NR | 600 | 996 | NR | 730 | 40 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 152 | NR | 605 | 996 | NR | 735 | 34 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 171 | NR | 610 | 980 | NR | 740 | 29 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 210 | NR | 615 | 947 | NR | 745 | 25 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2407-176-7

## Melanopic Flux vs. Wavelength




**Melanopic Lumens: NR** **M/P: 2.51**

| λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 0 | NR | 490 | 260 | NR | 620 | 905 | NR | 750 | 22 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 312 | NR | 625 | 856 | NR | 755 | 19 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 362 | NR | 630 | 801 | NR | 760 | 17 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 399 | NR | 635 | 742 | NR | 765 | 14 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 425 | NR | 640 | 677 | NR | 770 | 12 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 446 | NR | 645 | 613 | NR | 775 | 10 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 459 | NR | 650 | 549 | NR | 780 | 9 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 473 | NR | 655 | 485 | NR | 785 | 7 | NR | 915 | 0 | NR |
| 400 | 1 | NR | 530 | 490 | NR | 660 | 425 | NR | 790 | 6 | NR | 920 | 0 | NR |
| 405 | 2 | NR | 535 | 511 | NR | 665 | 371 | NR | 795 | 5 | NR | 925 | 0 | NR |
| 410 | 5 | NR | 540 | 535 | NR | 670 | 321 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 11 | NR | 545 | 565 | NR | 675 | 276 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 24 | NR | 550 | 595 | NR | 680 | 238 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 47 | NR | 555 | 631 | NR | 685 | 203 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 86 | NR | 560 | 672 | NR | 690 | 174 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 144 | NR | 565 | 715 | NR | 695 | 148 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 224 | NR | 570 | 763 | NR | 700 | 124 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 342 | NR | 575 | 814 | NR | 705 | 105 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 446 | NR | 580 | 866 | NR | 710 | 88 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 357 | NR | 585 | 912 | NR | 715 | 73 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 237 | NR | 590 | 954 | NR | 720 | 59 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 202 | NR | 595 | 981 | NR | 725 | 48 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 172 | NR | 600 | 996 | NR | 730 | 40 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 152 | NR | 605 | 996 | NR | 735 | 34 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 171 | NR | 610 | 980 | NR | 740 | 29 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 210 | NR | 615 | 947 | NR | 745 | 25 | NR | 875 | 0 | NR | | | |

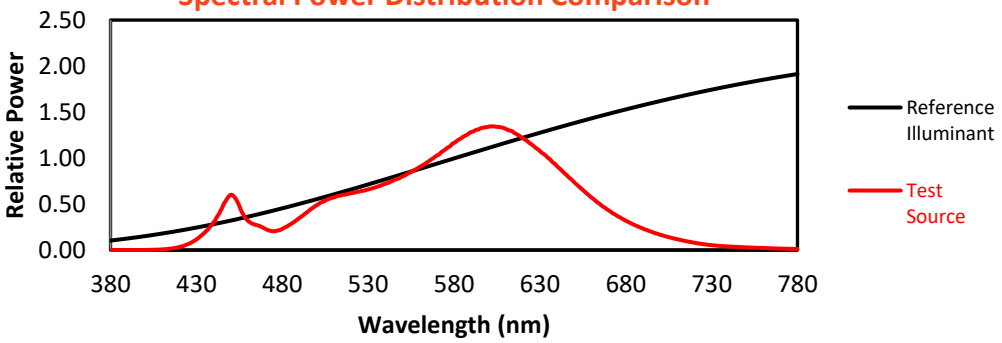
REPORT NUMBER: SP1-2407-176-7

# TM-30-18

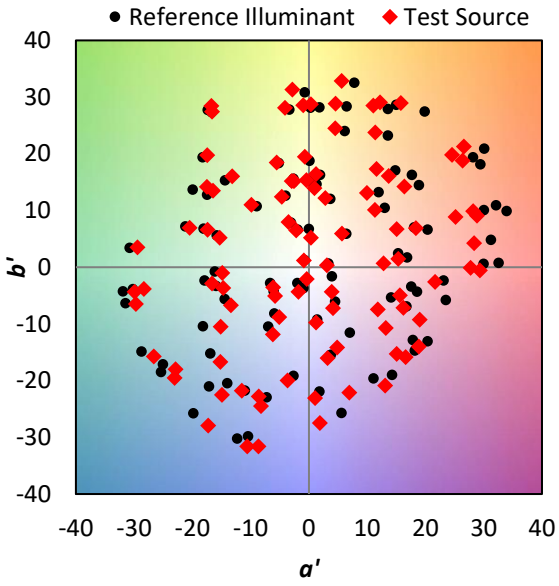
## Summary

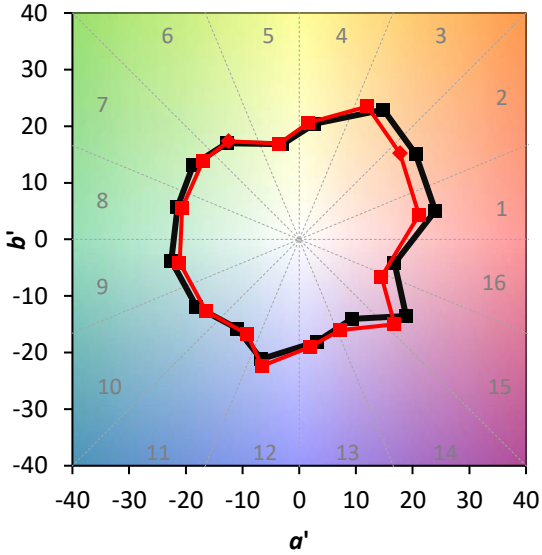
$R_f$ = 85.8
$R_g$ = 94.1
CIE $R_a$ = 81.8
$R_9$ = -1.1

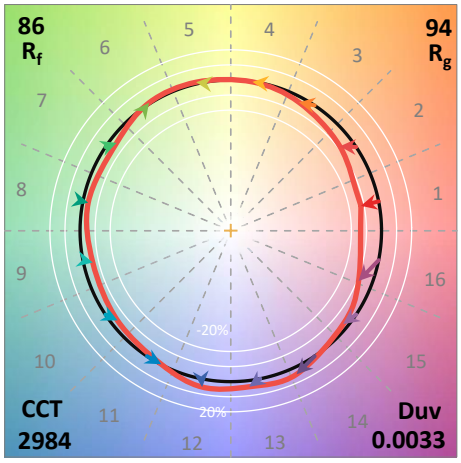
## Spectral Power Distribution Comparison

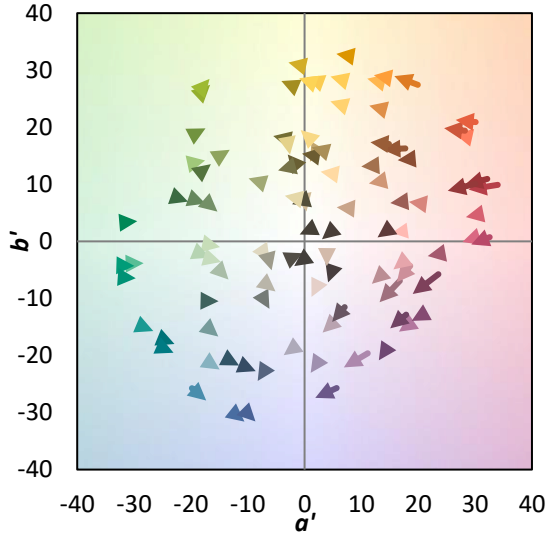



## Color Vector Graphics



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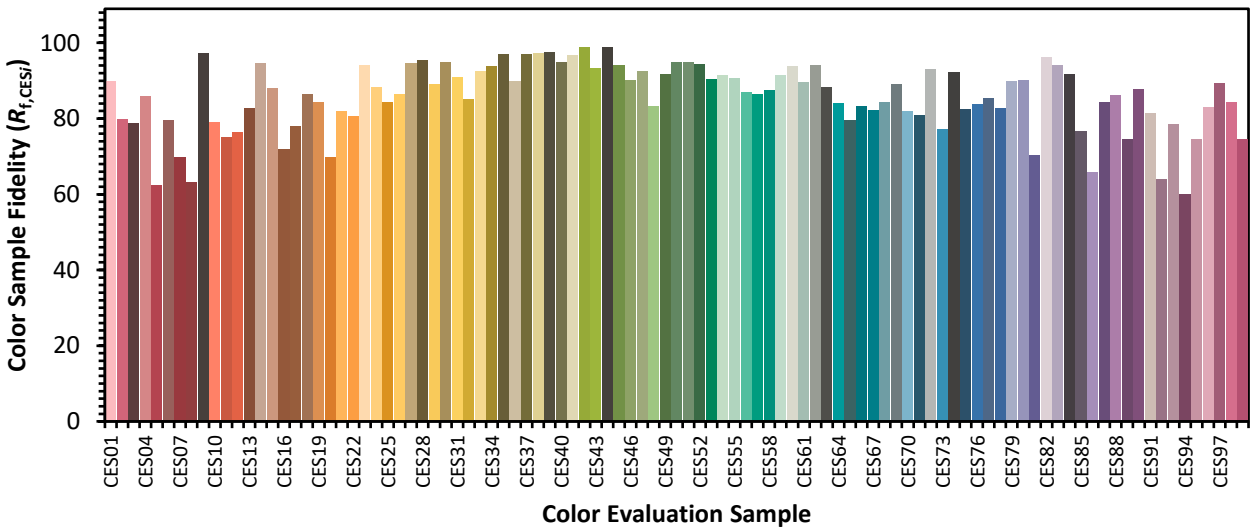
**Individual Sample Fidelity Index ($R_{f,i}$)**

| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 86 | CES51 = 95 | CES76 = 84 |
| CES02 = 63 | CES27 = 95 | CES52 = 94 | CES77 = 86 |
| CES03 = 31 | CES28 = 95 | CES53 = 90 | CES78 = 83 |
| CES04 = 70 | CES29 = 89 | CES54 = 91 | CES79 = 90 |
| CES05 = 50 | CES30 = 95 | CES55 = 91 | CES80 = 90 |
| CES06 = 51 | CES31 = 91 | CES56 = 87 | CES81 = 70 |
| CES07 = 42 | CES32 = 85 | CES57 = 86 | CES82 = 96 |
| CES08 = 41 | CES33 = 93 | CES58 = 87 | CES83 = 94 |
| CES09 = 29 | CES34 = 94 | CES59 = 92 | CES84 = 92 |
| CES10 = 76 | CES35 = 97 | CES60 = 94 | CES85 = 77 |
| CES11 = 59 | CES36 = 90 | CES61 = 90 | CES86 = 66 |
| CES12 = 65 | CES37 = 97 | CES62 = 94 | CES87 = 84 |
| CES13 = 43 | CES38 = 97 | CES63 = 88 | CES88 = 86 |
| CES14 = 74 | CES39 = 98 | CES64 = 84 | CES89 = 75 |
| CES15 = 72 | CES40 = 95 | CES65 = 80 | CES90 = 88 |
| CES16 = 47 | CES41 = 97 | CES66 = 83 | CES91 = 81 |
| CES17 = 50 | CES42 = 99 | CES67 = 82 | CES92 = 64 |
| CES18 = 56 | CES43 = 93 | CES68 = 84 | CES93 = 79 |
| CES19 = 72 | CES44 = 99 | CES69 = 89 | CES94 = 60 |
| CES20 = 67 | CES45 = 94 | CES70 = 82 | CES95 = 74 |
| CES21 = 87 | CES46 = 90 | CES71 = 81 | CES96 = 83 |
| CES22 = 79 | CES47 = 93 | CES72 = 93 | CES97 = 89 |
| CES23 = 92 | CES48 = 83 | CES73 = 77 | CES98 = 84 |
| CES24 = 91 | CES49 = 92 | CES74 = 92 | CES99 = 75 |
| CES25 = 72 | CES50 = 95 | CES75 = 83 | |



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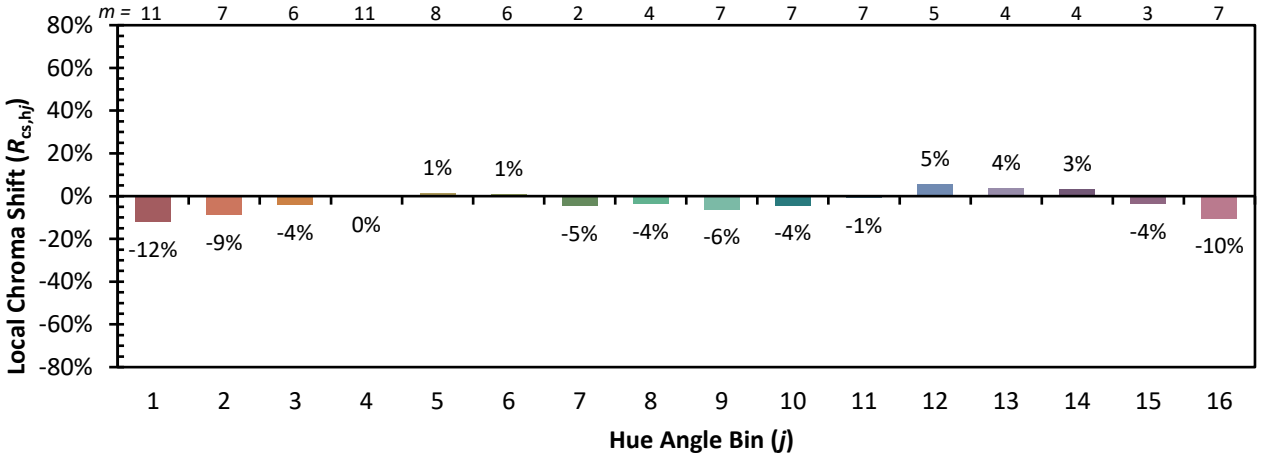
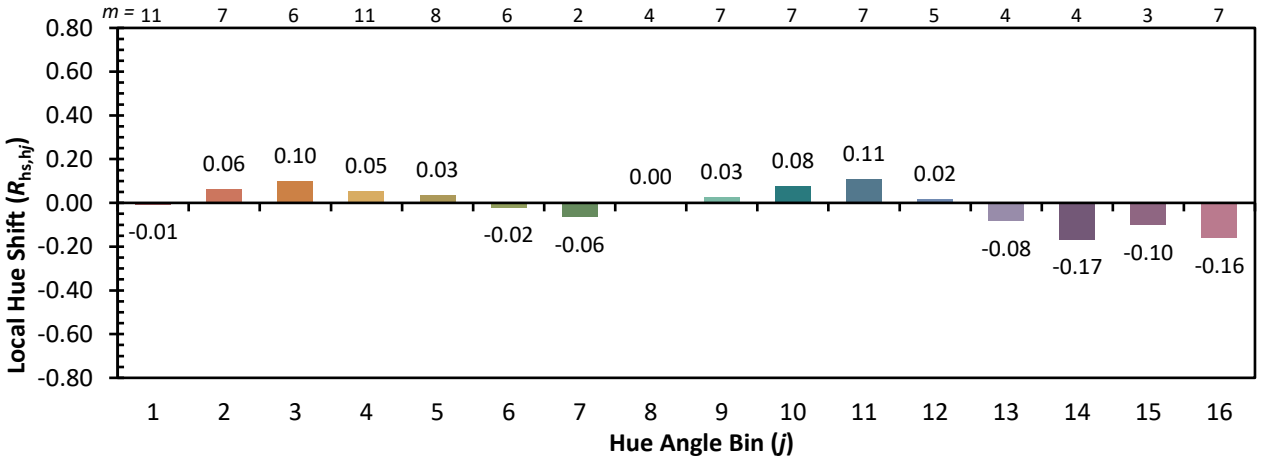
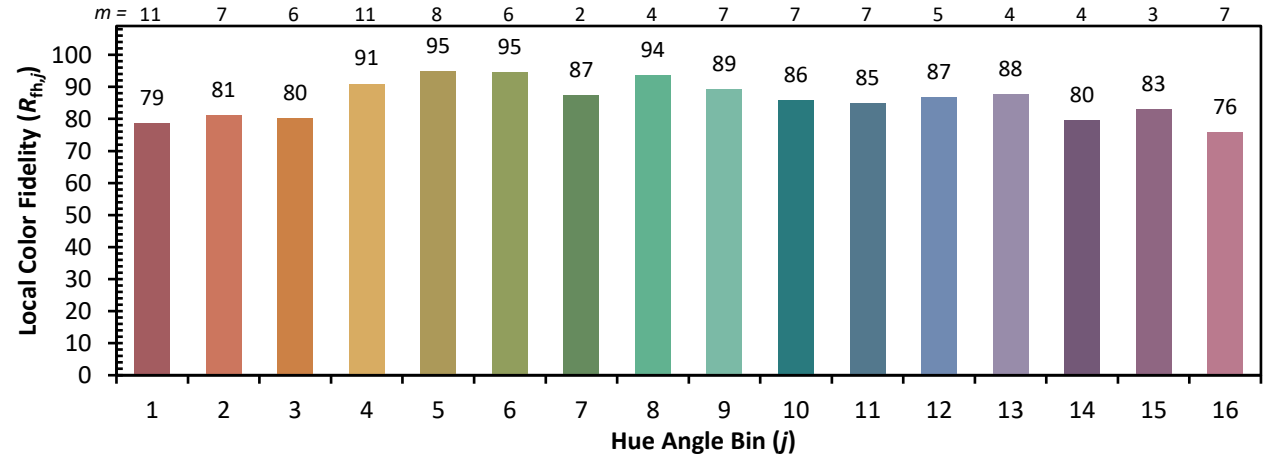
## Color Rendition by Hue-Angle Bin



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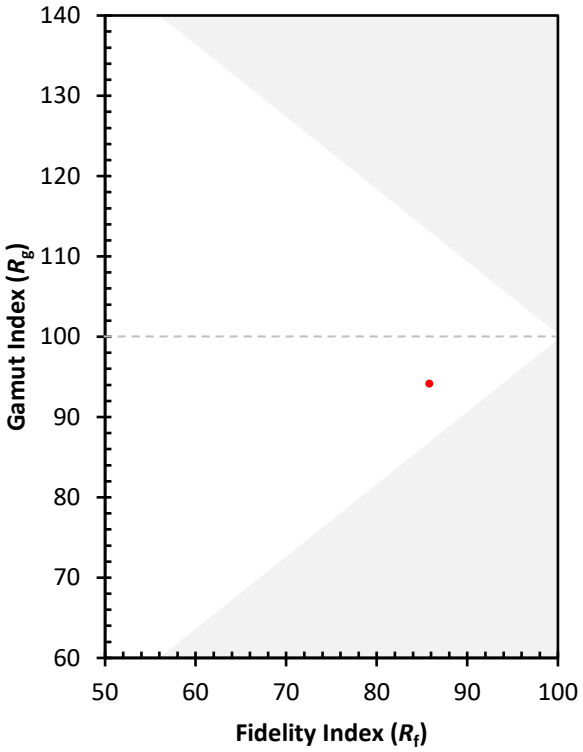
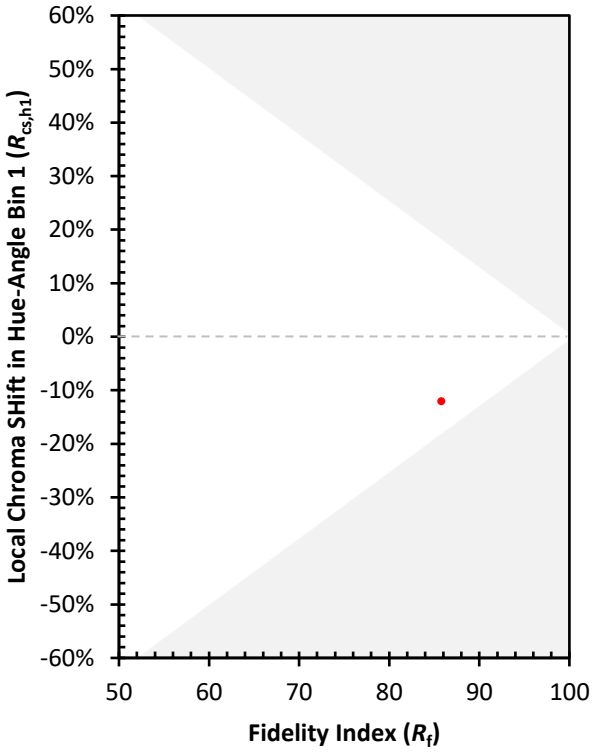
## Measure Comparisons




(END OF REPORT)