

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: P406518

Luminaire Tested: **TT-D1-750-U-DL-UPL**

Issue Date: 7/23/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P406518  
REPORT IS FROM IESNA LM-79-08 TEST DATA - UPLIGHT (G2-2002-677-3) AND  
Test Lab: INNOVATION CENTER  
Issue Date: 7/23/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: MCGRAW-EDISON  
Catalog Number: TT-D1-750-U-DL-UPL  
Description: TOPTIER LED PARKING GARAGE LUMINAIRE WITH UPLIGHT WITH UPLIGHT  
5000K, 70 CRI LEDS AND DRIVE LANE DISTRIBUTION  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4227.3 lumens  
Efficiency: N/A  
Efficacy: 114.9 lumens/watt  
Luminous Opening: Vertical Cylinder (Dia: 1.12' x H: 0.1')  
IES Classification: Type IV - Short - Non-Cutoff  
BUG Rating: B1 - U4 - G2

Input Watts (W): 36.8  
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

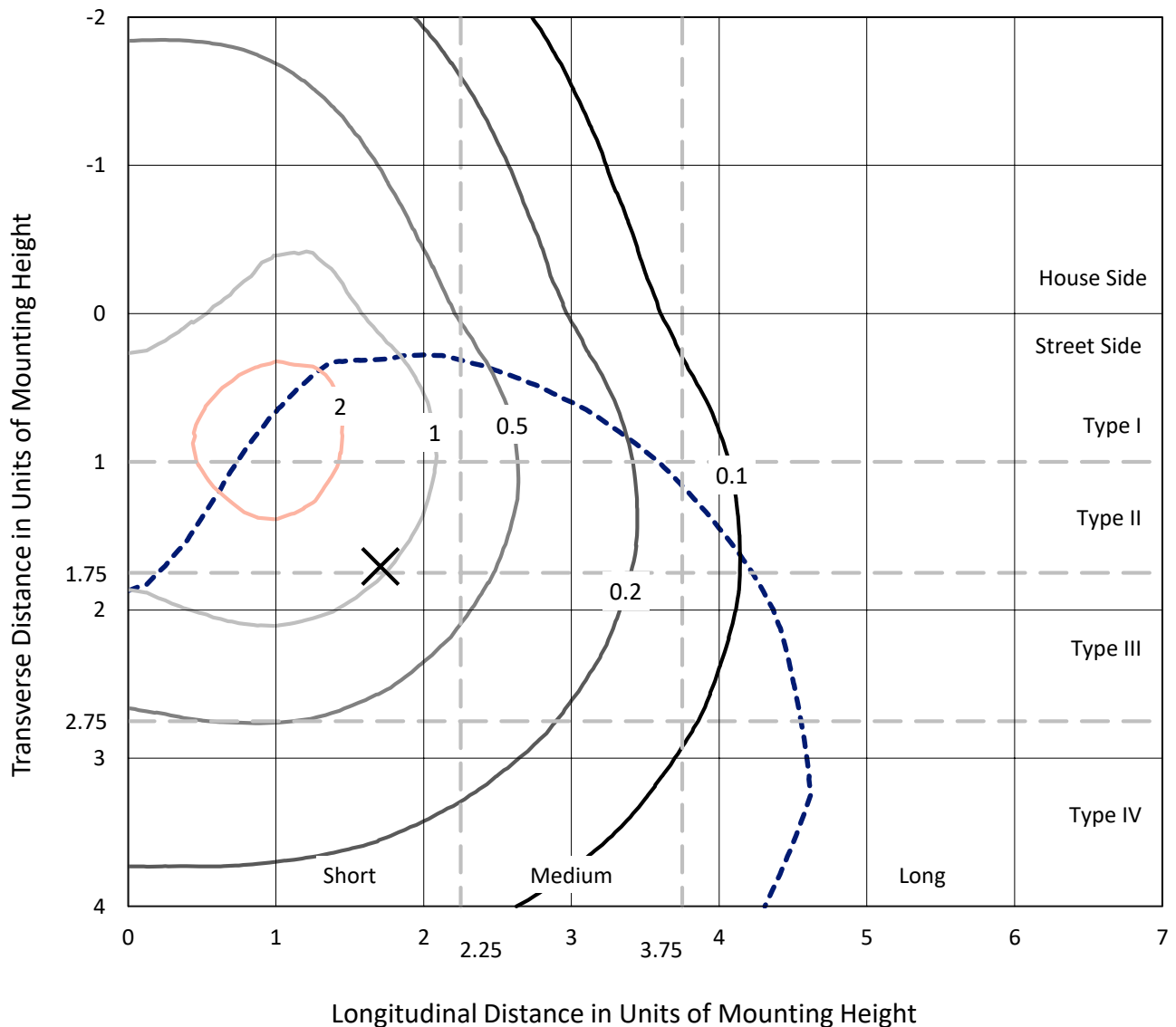


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### Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
 - - - 1/2 Max cd

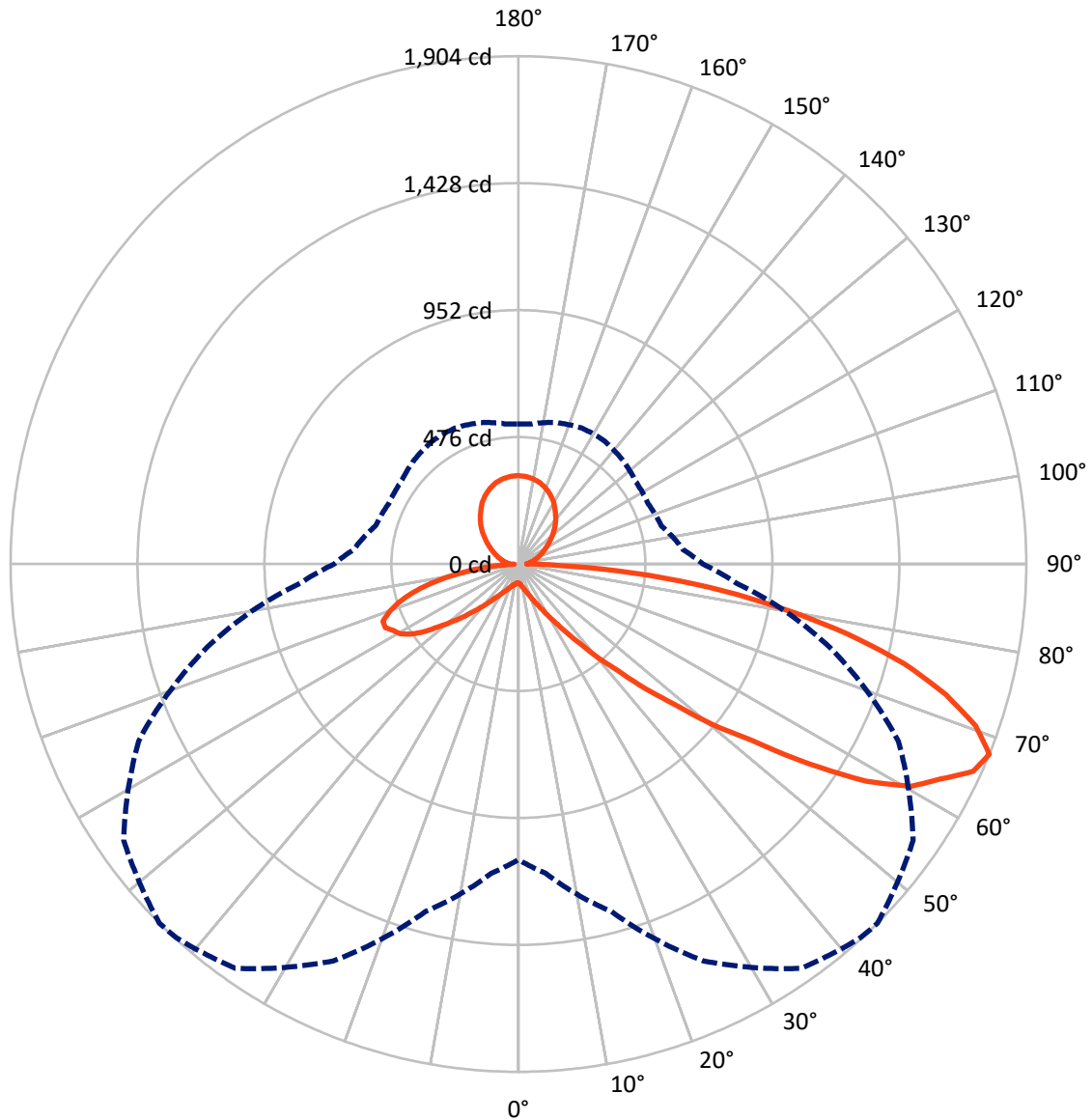


Based on 10 foot mounting height. Maximum calculated value = 2.5 fc  
 Type IV - Short - Non-Cutoff

REPORT NUMBER: P406518

CATALOG NUMBER: TT-D1-750-U-DL-UPL

### Luminous Intensity Polar Plot



— Vertical Plane Through 45-Deg Lateral    - - - Horizontal Cone Through 67.5-Deg Vertical

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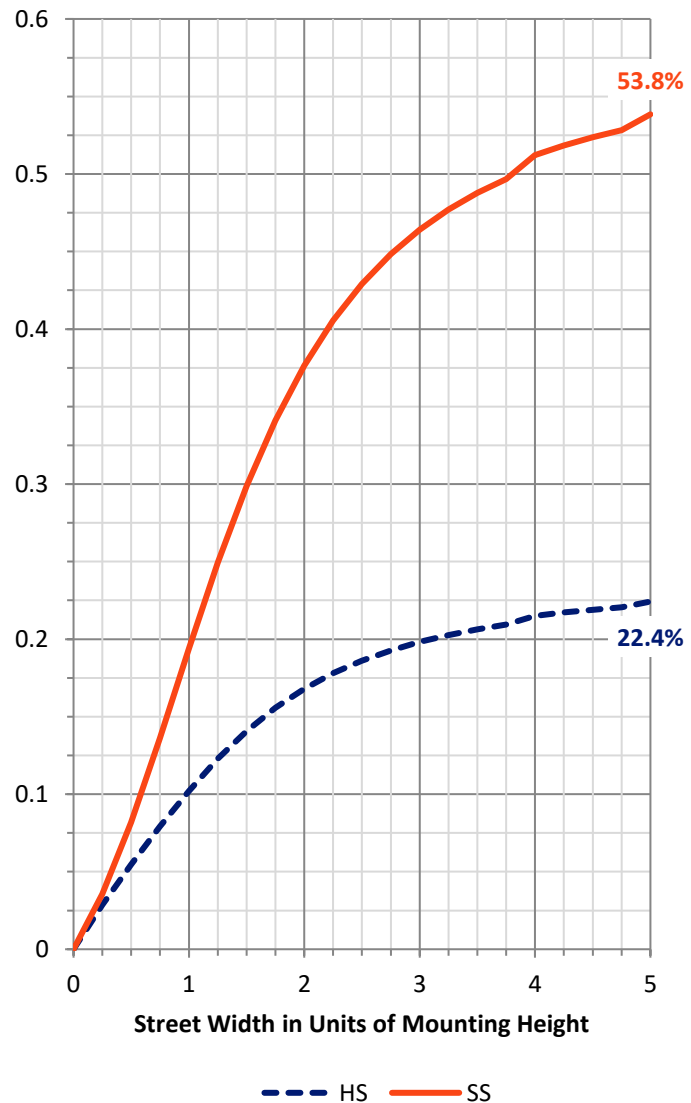
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 970.5    | 450.0  | 1420.5 |
|                    | % Fixture | 23.0     | 10.6   | 33.6   |
| <b>Street Side</b> | Lumens    | 2356.8   | 450.0  | 2806.9 |
|                    | % Fixture | 55.8     | 10.6   | 66.4   |
| <b>Total</b>       | Lumens    | 3327.3   | 900.0  | 4227.3 |
|                    | % Fixture | 78.7     | 21.3   | 100.0  |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 7.4    | 0.2       |
| 10°-20°   | 27.6   | 0.7       |
| 20°-30°   | 65.2   | 1.5       |
| 30°-40°   | 147.5  | 3.5       |
| 40°-50°   | 328.9  | 7.8       |
| 50°-60°   | 661.2  | 15.6      |
| 60°-70°   | 971.2  | 23.0      |
| 70°-80°   | 854.0  | 20.2      |
| 80°-90°   | 264.3  | 6.3       |
| 90°-100°  | 46.1   | 1.1       |
| 100°-110° | 71.4   | 1.7       |
| 110°-120° | 99.4   | 2.4       |
| 120°-130° | 128.8  | 3.0       |
| 130°-140° | 150.0  | 3.5       |
| 140°-150° | 152.1  | 3.6       |
| 150°-160° | 131.9  | 3.1       |
| 160°-170° | 89.0   | 2.1       |
| 170°-180° | 31.3   | 0.7       |
| 0°-90°    | 3327.3 | 78.7      |
| 0°-180°   | 4227.3 | 100.0     |



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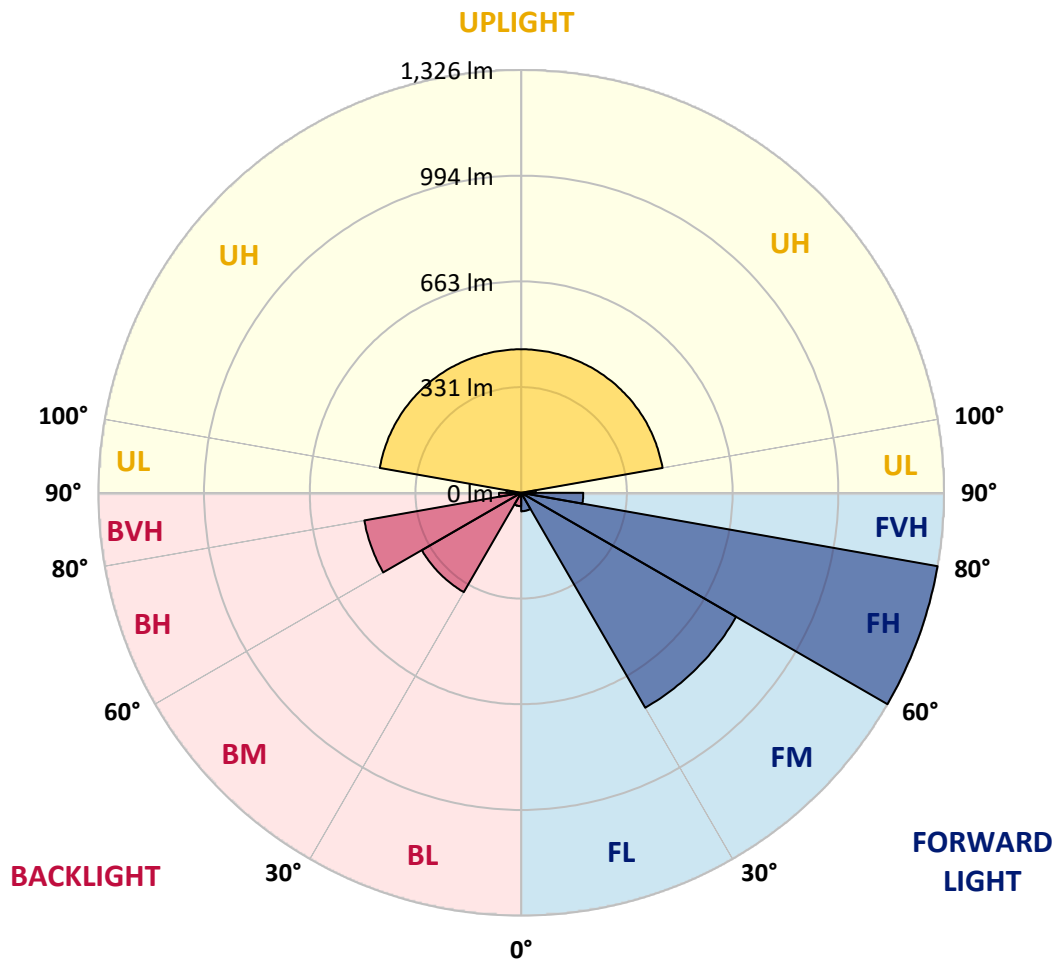
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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone           | Lumens | % Fixture | Zone Rating/Lumen Limit |        |         |
|----------------|--------|-----------|-------------------------|--------|---------|
|                |        |           | B                       | U      | G       |
| FL (0°-30°)    | 58.0   | 1.4       |                         |        |         |
| FM (30°-60°)   | 778.2  | 18.4      |                         |        |         |
| FH (60°-80°)   | 1325.8 | 31.4      |                         |        | G1/1800 |
| FVH (80°-90°)  | 194.8  | 4.6       |                         |        | G2/225  |
| BL (0°-30°)    | 42.1   | 1.0       | B0/110                  |        |         |
| BM (30°-60°)   | 359.5  | 8.5       | B1/1000                 |        |         |
| BH (60°-80°)   | 499.3  | 11.8      | B1/500                  |        | G1/500  |
| BVH (80°-90°)  | 69.5   | 1.6       |                         |        | G1/100  |
| UL (90°-100°)  | 46.1   | 1.1       |                         | U2/50  |         |
| UH (100°-180°) | 450.0  | 10.6      |                         | U3/500 |         |

**BUG Rating: B1-U4-G2**

Type IV Short





REPORT NUMBER: P406518

CATALOG NUMBER: TT-D1-750-U-DL-UPL

**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 5°     | 15°    | 25°    | 35°    | 42.5°  | 45°    | 55°    | 65°    | 75°    | 85°   |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|
| 0°     | 72.1   | 72.1   | 72.1   | 72.1   | 72.1   | 72.1   | 72.1   | 72.1   | 72.1   | 72.1   | 72.1  |
| 2.5°   | 75.2   | 74.6   | 74.6   | 74.6   | 73.9   | 73.9   | 73.9   | 73.9   | 73.3   | 73.3   | 73.3  |
| 5°     | 79.5   | 78.9   | 79.5   | 78.3   | 77.7   | 77.7   | 77.0   | 77.0   | 76.4   | 75.8   | 75.2  |
| 7.5°   | 85.7   | 85.1   | 85.1   | 83.9   | 83.3   | 82.6   | 82.6   | 81.4   | 80.8   | 79.5   | 78.3  |
| 10°    | 92.6   | 92.6   | 92.0   | 91.3   | 90.1   | 88.9   | 88.9   | 87.0   | 86.4   | 84.5   | 82.6  |
| 12.5°  | 100.7  | 100.7  | 100.7  | 99.4   | 98.2   | 97.6   | 96.3   | 95.1   | 93.2   | 90.1   | 88.2  |
| 15°    | 110.6  | 110.6  | 110.6  | 109.4  | 108.1  | 106.9  | 106.3  | 103.8  | 100.7  | 97.6   | 93.8  |
| 17.5°  | 123.0  | 121.8  | 121.8  | 120.5  | 119.3  | 118.7  | 117.4  | 115.0  | 110.6  | 106.9  | 101.9 |
| 20°    | 136.7  | 136.1  | 135.5  | 135.5  | 134.2  | 133.0  | 132.4  | 128.6  | 123.7  | 116.8  | 110.6 |
| 22.5°  | 152.2  | 151.6  | 151.6  | 152.9  | 152.2  | 150.4  | 150.4  | 144.8  | 137.9  | 129.9  | 120.5 |
| 25°    | 171.5  | 170.9  | 172.1  | 174.6  | 174.6  | 173.4  | 171.5  | 165.9  | 156.0  | 144.8  | 133.6 |
| 27.5°  | 192.6  | 192.0  | 194.5  | 198.8  | 200.1  | 198.2  | 197.0  | 190.8  | 179.6  | 164.7  | 148.5 |
| 30°    | 218.1  | 218.7  | 225.6  | 230.5  | 233.6  | 232.4  | 231.8  | 224.9  | 206.9  | 189.5  | 168.4 |
| 32.5°  | 249.2  | 247.3  | 256.0  | 264.1  | 269.7  | 272.8  | 270.9  | 262.8  | 247.3  | 220.0  | 193.2 |
| 35°    | 282.1  | 282.7  | 293.3  | 305.1  | 318.1  | 319.4  | 323.1  | 315.0  | 293.9  | 261.6  | 224.3 |
| 37.5°  | 325.0  | 320.0  | 333.7  | 356.0  | 371.6  | 385.2  | 382.8  | 377.8  | 352.9  | 310.1  | 259.1 |
| 40°    | 363.5  | 362.3  | 381.5  | 412.6  | 441.2  | 461.1  | 463.5  | 457.3  | 424.4  | 363.5  | 296.4 |
| 42.5°  | 407.6  | 411.3  | 438.1  | 480.9  | 524.4  | 553.0  | 546.2  | 543.1  | 504.6  | 426.9  | 347.3 |
| 45°    | 452.4  | 464.8  | 499.0  | 561.1  | 612.0  | 653.1  | 664.9  | 654.3  | 607.1  | 526.9  | 412.0 |
| 47.5°  | 506.4  | 523.2  | 565.4  | 649.3  | 732.6  | 780.4  | 782.9  | 814.6  | 743.2  | 623.2  | 479.1 |
| 50°    | 577.9  | 585.3  | 644.4  | 746.9  | 861.2  | 928.3  | 947.6  | 948.2  | 876.8  | 720.2  | 554.9 |
| 52.5°  | 648.1  | 653.7  | 731.4  | 863.7  | 1019.0 | 1095.5 | 1099.8 | 1124.1 | 1026.5 | 876.8  | 663.6 |
| 55°    | 732.6  | 730.1  | 837.0  | 996.1  | 1179.4 | 1290.6 | 1322.9 | 1355.8 | 1231.6 | 1000.4 | 725.8 |
| 57.5°  | 814.6  | 810.9  | 939.5  | 1148.3 | 1398.7 | 1509.3 | 1536.0 | 1512.4 | 1327.9 | 1052.0 | 756.2 |
| 60°    | 890.4  | 903.5  | 1060.1 | 1316.7 | 1568.3 | 1674.0 | 1692.0 | 1628.0 | 1390.0 | 1091.7 | 775.5 |
| 62.5°  | 969.3  | 995.4  | 1185.0 | 1457.1 | 1698.2 | 1774.0 | 1775.3 | 1700.1 | 1493.8 | 1168.8 | 838.2 |
| 65°    | 1043.3 | 1084.9 | 1281.9 | 1577.0 | 1788.9 | 1864.7 | 1873.4 | 1805.7 | 1595.7 | 1235.9 | 848.8 |
| 67.5°  | 1108.5 | 1163.8 | 1349.0 | 1641.7 | 1850.4 | 1899.5 | 1903.9 | 1806.3 | 1571.4 | 1208.6 | 819.6 |
| 70°    | 1161.3 | 1206.1 | 1390.6 | 1642.9 | 1807.6 | 1821.2 | 1818.1 | 1714.4 | 1504.3 | 1154.5 | 770.5 |
| 72.5°  | 1181.8 | 1218.5 | 1370.7 | 1565.9 | 1681.4 | 1678.3 | 1675.8 | 1580.1 | 1393.7 | 1064.4 | 699.7 |
| 75°    | 1152.6 | 1163.2 | 1262.0 | 1401.2 | 1474.5 | 1491.9 | 1494.4 | 1408.0 | 1222.9 | 930.8  | 600.2 |
| 77.5°  | 1032.1 | 1026.5 | 1102.3 | 1194.3 | 1249.6 | 1262.0 | 1259.5 | 1187.4 | 1025.3 | 773.6  | 503.3 |
| 80°    | 818.3  | 830.2  | 877.4  | 938.3  | 993.6  | 1007.2 | 998.5  | 943.9  | 797.8  | 603.4  | 386.5 |
| 82.5°  | 572.3  | 586.6  | 626.3  | 672.3  | 714.0  | 714.0  | 722.0  | 669.2  | 565.4  | 433.1  | 270.3 |
| 85°    | 308.8  | 300.7  | 344.2  | 396.4  | 426.3  | 431.9  | 435.0  | 417.6  | 349.8  | 261.6  | 160.3 |
| 87.5°  | 51.0   | 54.7   | 67.7   | 103.8  | 118.1  | 136.7  | 145.4  | 113.7  | 69.0   | 44.1   | 32.3  |
| 90°    | 32.5   | 31.5   | 31.5   | 31.5   | 31.5   | 31.5   | 31.5   | 31.5   | 31.5   | 31.5   | 31.5  |
| 92.5°  | 37.6   | 37.1   | 37.1   | 36.6   | 36.6   | 36.6   | 36.6   | 36.6   | 36.6   | 36.6   | 36.6  |
| 95°    | 42.7   | 42.7   | 42.7   | 41.7   | 41.7   | 41.7   | 41.7   | 41.7   | 41.7   | 41.7   | 41.7  |
| 97.5°  | 48.3   | 48.3   | 48.3   | 47.8   | 47.8   | 47.8   | 47.8   | 47.8   | 47.8   | 47.8   | 47.8  |
| 100°   | 53.9   | 53.9   | 53.9   | 53.9   | 53.9   | 53.9   | 53.9   | 53.9   | 53.9   | 53.9   | 53.9  |
| 102.5° | 60.5   | 60.5   | 60.5   | 60.5   | 60.5   | 60.5   | 60.5   | 60.5   | 61.0   | 60.5   | 60.5  |
| 105°   | 67.1   | 67.1   | 67.1   | 67.1   | 67.1   | 67.1   | 67.1   | 67.1   | 68.1   | 67.1   | 67.1  |
| 107.5° | 74.2   | 74.2   | 74.7   | 74.7   | 74.7   | 74.7   | 74.7   | 74.7   | 75.2   | 74.7   | 74.7  |
| 110°   | 81.3   | 81.3   | 82.3   | 82.3   | 82.3   | 82.3   | 82.3   | 82.3   | 82.3   | 82.3   | 82.3  |



REPORT NUMBER: P406518

CATALOG NUMBER: TT-D1-750-U-DL-UPL

**CANDELA DISTRIBUTION (continued):**

|        | 0°    | 5°    | 15°   | 25°   | 35°   | 42.5° | 45°   | 55°   | 65°   | 75°   | 85°   |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 112.5° | 89.9  | 89.9  | 90.9  | 90.9  | 90.9  | 90.9  | 90.9  | 91.4  | 91.4  | 90.9  | 90.9  |
| 115°   | 98.6  | 98.6  | 99.6  | 99.6  | 99.6  | 99.6  | 99.6  | 100.6 | 100.6 | 99.6  | 99.6  |
| 117.5° | 108.8 | 108.8 | 109.2 | 109.8 | 109.8 | 109.8 | 109.8 | 110.8 | 110.8 | 109.8 | 109.8 |
| 120°   | 118.9 | 118.9 | 118.9 | 119.9 | 119.9 | 119.9 | 119.9 | 121.0 | 121.0 | 119.9 | 119.9 |
| 122.5° | 130.6 | 130.6 | 131.1 | 131.6 | 131.6 | 131.6 | 131.6 | 132.6 | 132.6 | 132.1 | 132.1 |
| 125°   | 142.3 | 142.3 | 143.3 | 143.3 | 143.3 | 143.3 | 143.3 | 144.3 | 144.3 | 144.3 | 144.3 |
| 127.5° | 155.0 | 155.0 | 156.0 | 156.0 | 156.0 | 156.0 | 156.0 | 157.0 | 157.0 | 157.0 | 157.0 |
| 130°   | 167.7 | 167.7 | 168.7 | 168.7 | 168.7 | 168.7 | 168.7 | 169.7 | 169.7 | 169.7 | 169.7 |
| 132.5° | 180.9 | 180.9 | 181.4 | 181.4 | 181.4 | 181.8 | 181.9 | 182.4 | 182.4 | 182.4 | 182.4 |
| 135°   | 194.1 | 194.1 | 194.1 | 194.1 | 194.1 | 194.8 | 195.1 | 195.1 | 195.1 | 195.1 | 195.1 |
| 137.5° | 206.8 | 206.3 | 206.8 | 206.3 | 206.8 | 207.2 | 207.3 | 207.3 | 207.3 | 207.3 | 207.3 |
| 140°   | 219.5 | 218.5 | 219.5 | 218.5 | 219.5 | 219.5 | 219.5 | 219.5 | 219.5 | 219.5 | 219.5 |
| 142.5° | 231.2 | 230.7 | 231.2 | 230.2 | 231.2 | 231.2 | 231.2 | 231.2 | 231.2 | 231.2 | 231.2 |
| 145°   | 242.9 | 242.9 | 242.9 | 241.9 | 242.9 | 242.9 | 242.9 | 242.9 | 242.9 | 242.9 | 242.9 |
| 147.5° | 255.1 | 254.6 | 255.1 | 254.1 | 255.1 | 255.1 | 255.1 | 255.1 | 255.1 | 255.1 | 255.1 |
| 150°   | 267.3 | 266.3 | 267.3 | 266.3 | 267.3 | 267.3 | 267.3 | 267.3 | 267.3 | 267.3 | 267.3 |
| 152.5° | 277.0 | 276.5 | 277.5 | 276.5 | 277.0 | 277.0 | 277.0 | 277.5 | 277.0 | 277.0 | 277.0 |
| 155°   | 286.6 | 286.6 | 287.6 | 286.6 | 286.6 | 286.6 | 286.6 | 287.6 | 286.6 | 286.6 | 286.6 |
| 157.5° | 294.8 | 294.8 | 295.8 | 294.8 | 294.8 | 294.8 | 294.8 | 295.8 | 294.8 | 294.8 | 294.8 |
| 160°   | 302.9 | 302.9 | 303.9 | 302.9 | 302.9 | 302.9 | 302.9 | 303.9 | 302.9 | 302.9 | 302.9 |
| 162.5° | 309.5 | 309.5 | 310.5 | 309.5 | 309.5 | 309.5 | 309.5 | 310.5 | 309.5 | 309.5 | 309.5 |
| 165°   | 316.1 | 316.1 | 317.1 | 316.1 | 316.1 | 316.1 | 316.1 | 317.1 | 316.1 | 316.1 | 316.1 |
| 167.5° | 320.2 | 320.2 | 321.2 | 320.2 | 320.2 | 320.2 | 320.2 | 321.2 | 320.2 | 320.2 | 320.2 |
| 170°   | 324.2 | 324.2 | 325.2 | 324.2 | 324.2 | 324.2 | 324.2 | 325.2 | 324.2 | 324.2 | 324.2 |
| 172.5° | 326.8 | 326.8 | 327.8 | 326.8 | 327.2 | 326.9 | 326.8 | 327.8 | 326.8 | 326.8 | 326.8 |
| 175°   | 329.3 | 329.3 | 330.3 | 329.3 | 330.3 | 329.6 | 329.3 | 330.3 | 329.3 | 329.3 | 329.3 |
| 177.5° | 330.3 | 330.3 | 330.8 | 330.3 | 330.8 | 330.4 | 330.3 | 330.8 | 330.3 | 330.3 | 330.3 |
| 180°   | 331.3 | 331.3 | 331.3 | 331.3 | 331.3 | 331.3 | 331.3 | 331.3 | 331.3 | 331.3 | 331.3 |





REPORT NUMBER: P406518

CATALOG NUMBER: TT-D1-750-U-DL-UPL

**CANDELA DISTRIBUTION (continued):**

|        | 90°   | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°     | 72.1  | 72.1  | 72.1  | 72.1  | 72.1  | 72.1  | 72.1  | 72.1  | 72.1  | 72.1  | 72.1  |
| 2.5°   | 73.3  | 72.7  | 72.1  | 71.5  | 71.5  | 70.8  | 70.8  | 70.8  | 71.5  | 71.5  | 71.5  |
| 5°     | 75.2  | 74.6  | 73.9  | 73.3  | 72.1  | 72.1  | 72.1  | 72.1  | 72.1  | 72.1  | 72.1  |
| 7.5°   | 78.3  | 77.0  | 76.4  | 75.2  | 73.9  | 73.9  | 73.3  | 73.3  | 73.3  | 73.9  | 73.3  |
| 10°    | 82.0  | 80.8  | 79.5  | 77.7  | 77.0  | 76.4  | 75.8  | 75.8  | 76.4  | 76.4  | 75.8  |
| 12.5°  | 86.4  | 85.7  | 83.3  | 81.4  | 80.2  | 79.5  | 78.9  | 79.5  | 78.9  | 79.5  | 79.5  |
| 15°    | 92.6  | 90.7  | 87.6  | 85.7  | 83.9  | 83.3  | 82.6  | 83.3  | 83.3  | 83.9  | 83.3  |
| 17.5°  | 99.4  | 96.9  | 93.8  | 90.7  | 88.2  | 87.6  | 87.6  | 87.6  | 88.2  | 88.9  | 88.2  |
| 20°    | 107.5 | 104.4 | 100.0 | 96.3  | 93.8  | 93.2  | 93.2  | 93.8  | 94.4  | 95.1  | 95.1  |
| 22.5°  | 115.6 | 113.1 | 106.9 | 101.9 | 100.7 | 100.0 | 99.4  | 100.7 | 101.9 | 102.5 | 103.1 |
| 25°    | 128.0 | 123.0 | 115.6 | 110.0 | 107.5 | 107.5 | 108.1 | 109.4 | 110.0 | 111.2 | 110.6 |
| 27.5°  | 141.1 | 135.5 | 126.1 | 118.7 | 116.8 | 116.2 | 117.4 | 118.7 | 121.2 | 121.2 | 120.5 |
| 30°    | 159.1 | 149.8 | 137.9 | 131.1 | 126.1 | 126.8 | 128.6 | 130.5 | 133.0 | 134.2 | 134.2 |
| 32.5°  | 179.6 | 169.6 | 153.5 | 142.9 | 140.4 | 141.1 | 141.7 | 144.8 | 147.3 | 149.8 | 147.9 |
| 35°    | 206.3 | 193.9 | 174.0 | 162.2 | 156.0 | 155.3 | 157.8 | 161.6 | 164.0 | 165.3 | 165.3 |
| 37.5°  | 235.5 | 219.3 | 194.5 | 184.5 | 177.1 | 176.5 | 177.1 | 180.2 | 183.3 | 184.5 | 187.0 |
| 40°    | 270.9 | 251.0 | 221.8 | 205.7 | 200.1 | 198.8 | 201.3 | 205.7 | 205.7 | 207.5 | 208.2 |
| 42.5°  | 314.4 | 288.9 | 256.6 | 235.5 | 228.7 | 228.7 | 228.0 | 231.8 | 231.8 | 231.8 | 230.5 |
| 45°    | 369.7 | 341.1 | 298.9 | 277.1 | 265.3 | 259.1 | 261.0 | 258.5 | 257.9 | 259.7 | 254.1 |
| 47.5°  | 423.2 | 387.1 | 337.4 | 313.8 | 302.0 | 298.3 | 291.4 | 289.6 | 286.5 | 286.5 | 278.4 |
| 50°    | 485.3 | 440.6 | 392.7 | 359.2 | 348.0 | 337.4 | 331.8 | 323.1 | 313.8 | 311.9 | 308.8 |
| 52.5°  | 589.1 | 533.1 | 457.9 | 421.9 | 393.3 | 382.8 | 369.7 | 358.5 | 347.3 | 338.6 | 343.6 |
| 55°    | 631.3 | 574.1 | 502.7 | 467.9 | 448.0 | 438.1 | 413.8 | 398.9 | 382.1 | 369.7 | 376.6 |
| 57.5°  | 652.4 | 590.3 | 523.8 | 497.7 | 492.1 | 482.8 | 464.8 | 439.3 | 420.0 | 404.5 | 405.8 |
| 60°    | 664.2 | 599.0 | 535.0 | 511.4 | 508.3 | 514.5 | 505.2 | 487.8 | 457.9 | 442.4 | 440.6 |
| 62.5°  | 709.6 | 641.3 | 566.7 | 533.1 | 526.3 | 530.7 | 533.1 | 522.6 | 497.7 | 477.2 | 471.6 |
| 65°    | 718.9 | 646.2 | 572.9 | 551.2 | 551.8 | 553.0 | 554.9 | 543.7 | 531.3 | 505.8 | 500.8 |
| 67.5°  | 691.0 | 619.5 | 554.3 | 536.2 | 537.5 | 551.8 | 563.0 | 562.3 | 548.7 | 526.9 | 525.1 |
| 70°    | 648.7 | 579.1 | 518.8 | 502.7 | 505.8 | 518.8 | 543.1 | 555.5 | 553.0 | 538.7 | 541.8 |
| 72.5°  | 582.8 | 520.7 | 467.9 | 455.5 | 462.9 | 475.3 | 498.3 | 520.7 | 533.8 | 536.9 | 543.7 |
| 75°    | 505.8 | 456.1 | 406.4 | 398.9 | 404.5 | 418.8 | 439.9 | 466.0 | 494.6 | 510.1 | 514.5 |
| 77.5°  | 417.6 | 372.2 | 335.5 | 330.6 | 338.6 | 351.7 | 372.8 | 393.3 | 425.6 | 453.0 | 459.2 |
| 80°    | 326.8 | 287.7 | 261.6 | 257.2 | 262.2 | 273.4 | 289.6 | 306.3 | 337.4 | 358.5 | 361.6 |
| 82.5°  | 226.8 | 203.2 | 186.4 | 183.9 | 187.0 | 191.4 | 204.4 | 220.0 | 237.4 | 254.1 | 256.0 |
| 85°    | 131.7 | 116.8 | 112.5 | 108.7 | 115.6 | 115.6 | 118.7 | 127.4 | 136.1 | 137.3 | 141.1 |
| 87.5°  | 24.2  | 23.0  | 23.6  | 17.4  | 21.7  | 15.5  | 15.5  | 19.9  | 14.9  | 17.4  | 14.3  |
| 90°    | 31.5  | 31.5  | 31.5  | 31.5  | 31.5  | 31.5  | 31.5  | 31.5  | 31.5  | 31.5  | 32.5  |
| 92.5°  | 36.6  | 36.6  | 36.6  | 36.6  | 36.6  | 36.6  | 36.6  | 36.6  | 37.1  | 37.1  | 37.6  |
| 95°    | 41.7  | 41.7  | 41.7  | 41.7  | 41.7  | 41.7  | 41.7  | 41.7  | 42.7  | 42.7  | 42.7  |
| 97.5°  | 47.8  | 47.8  | 47.8  | 47.8  | 47.8  | 47.8  | 47.8  | 47.8  | 48.3  | 48.3  | 48.3  |
| 100°   | 53.9  | 53.9  | 53.9  | 53.9  | 53.9  | 53.9  | 53.9  | 53.9  | 53.9  | 53.9  | 53.9  |
| 102.5° | 60.5  | 60.5  | 60.5  | 61.0  | 60.5  | 60.5  | 60.5  | 60.5  | 60.5  | 60.5  | 60.5  |
| 105°   | 67.1  | 67.1  | 67.1  | 68.1  | 67.1  | 67.1  | 67.1  | 67.1  | 67.1  | 67.1  | 67.1  |
| 107.5° | 74.7  | 74.7  | 74.7  | 75.2  | 74.7  | 74.7  | 74.7  | 74.7  | 74.7  | 74.2  | 74.2  |
| 110°   | 82.3  | 82.3  | 82.3  | 82.3  | 82.3  | 82.3  | 82.3  | 82.3  | 82.3  | 81.3  | 81.3  |



REPORT NUMBER: P406518

CATALOG NUMBER: TT-D1-750-U-DL-UPL

**CANDELA DISTRIBUTION (continued):**

|        | 90°   | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 112.5° | 90.9  | 90.9  | 90.9  | 91.4  | 91.4  | 90.9  | 90.9  | 90.9  | 90.9  | 89.9  | 89.9  |
| 115°   | 99.6  | 99.6  | 99.6  | 100.6 | 100.6 | 99.6  | 99.6  | 99.6  | 99.6  | 98.6  | 98.6  |
| 117.5° | 109.8 | 109.8 | 109.8 | 110.8 | 110.8 | 109.8 | 109.8 | 109.8 | 109.2 | 108.8 | 108.8 |
| 120°   | 119.9 | 119.9 | 119.9 | 121.0 | 121.0 | 119.9 | 119.9 | 119.9 | 118.9 | 118.9 | 118.9 |
| 122.5° | 131.6 | 132.1 | 132.1 | 132.6 | 132.6 | 131.6 | 131.6 | 131.6 | 131.1 | 130.6 | 130.6 |
| 125°   | 143.3 | 144.3 | 144.3 | 144.3 | 144.3 | 143.3 | 143.3 | 143.3 | 143.3 | 142.3 | 142.3 |
| 127.5° | 156.0 | 157.0 | 157.0 | 157.0 | 157.0 | 156.0 | 156.0 | 156.0 | 156.0 | 155.0 | 155.0 |
| 130°   | 168.7 | 169.7 | 169.7 | 169.7 | 169.7 | 168.7 | 168.7 | 168.7 | 168.7 | 167.7 | 167.7 |
| 132.5° | 181.9 | 182.4 | 182.4 | 182.4 | 182.4 | 181.9 | 181.4 | 181.4 | 181.4 | 180.9 | 180.9 |
| 135°   | 195.1 | 195.1 | 195.1 | 195.1 | 195.1 | 195.1 | 194.1 | 194.1 | 194.1 | 194.1 | 194.1 |
| 137.5° | 207.3 | 207.3 | 207.3 | 207.3 | 207.3 | 207.3 | 206.8 | 206.3 | 206.8 | 206.3 | 206.8 |
| 140°   | 219.5 | 219.5 | 219.5 | 219.5 | 219.5 | 219.5 | 219.5 | 218.5 | 219.5 | 218.5 | 219.5 |
| 142.5° | 231.2 | 231.2 | 231.2 | 231.2 | 231.2 | 231.2 | 231.2 | 230.2 | 231.2 | 230.7 | 231.2 |
| 145°   | 242.9 | 242.9 | 242.9 | 242.9 | 242.9 | 242.9 | 242.9 | 241.9 | 242.9 | 242.9 | 242.9 |
| 147.5° | 255.1 | 255.1 | 255.1 | 255.1 | 255.1 | 255.1 | 255.1 | 254.1 | 255.1 | 254.6 | 255.1 |
| 150°   | 267.3 | 267.3 | 267.3 | 267.3 | 267.3 | 267.3 | 267.3 | 266.3 | 267.3 | 266.3 | 267.3 |
| 152.5° | 277.0 | 277.0 | 277.0 | 277.0 | 277.5 | 277.0 | 277.0 | 276.5 | 277.5 | 276.5 | 277.0 |
| 155°   | 286.6 | 286.6 | 286.6 | 286.6 | 287.6 | 286.6 | 286.6 | 286.6 | 287.6 | 286.6 | 286.6 |
| 157.5° | 294.8 | 294.8 | 294.8 | 294.8 | 295.8 | 294.8 | 294.8 | 294.8 | 295.8 | 294.8 | 294.8 |
| 160°   | 302.9 | 302.9 | 302.9 | 302.9 | 303.9 | 302.9 | 302.9 | 302.9 | 303.9 | 302.9 | 302.9 |
| 162.5° | 309.5 | 309.5 | 309.5 | 309.5 | 310.5 | 309.5 | 309.5 | 309.5 | 310.5 | 309.5 | 309.5 |
| 165°   | 316.1 | 316.1 | 316.1 | 316.1 | 317.1 | 316.1 | 316.1 | 316.1 | 317.1 | 316.1 | 316.1 |
| 167.5° | 320.2 | 320.2 | 320.2 | 320.2 | 321.2 | 320.2 | 320.2 | 320.2 | 321.2 | 320.2 | 320.2 |
| 170°   | 324.2 | 324.2 | 324.2 | 324.2 | 325.2 | 324.2 | 324.2 | 324.2 | 325.2 | 324.2 | 324.2 |
| 172.5° | 326.8 | 326.8 | 326.8 | 326.8 | 327.8 | 326.8 | 327.2 | 326.8 | 327.8 | 326.8 | 326.8 |
| 175°   | 329.3 | 329.3 | 329.3 | 329.3 | 330.3 | 329.3 | 330.3 | 329.3 | 330.3 | 329.3 | 329.3 |
| 177.5° | 330.3 | 330.3 | 330.3 | 330.3 | 330.8 | 330.3 | 330.8 | 330.3 | 330.8 | 330.3 | 330.3 |
| 180°   | 331.3 | 331.3 | 331.3 | 331.3 | 331.3 | 331.3 | 331.3 | 331.3 | 331.3 | 331.3 | 331.3 |

LM-79-08: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

McGRAW-EDISON

Report Number: SP1-2006-844-1

Luminaire Tested: TT-D4-750-U-WQ

Test Date: 11/06/2020

Data applicable to product families TT-x-750 and TTN-x-750

**Test Information**

Test Method: LM-79-08  
 Report Number: SP1-2006-844-1  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1  
 Measurement Geometry: 4π  
 Issue Date: 11/06/2020  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: MCGRAW-EDISON  
 Catalog Number: **TT-D4-750-U-WQ**  
 Description: MCGRAW EDISON

DISTRIBUTION

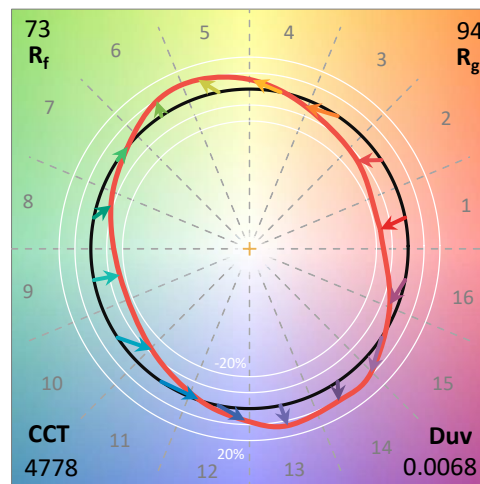
**Spectral Parameters**

CCT (K): 4778  
 CIE u': 0.2092  
 CIE v': 0.4955  
 Duv: 0.0068  
 CIE x: 0.3535  
 CIE y: 0.3721  
 CIE z: 0.2744  
 Peak Wavelength (nm): 449  
 Dominant Wavelength (nm): 570  
 Purity: 17.8  
 Rf: 73.3  
 Rg: 94.5

|           |      |      |       |
|-----------|------|------|-------|
| CRI (Ra): | 71.0 |      |       |
| R1:       | 67.7 | R9:  | -28.7 |
| R2:       | 75.2 | R10: | 41.2  |
| R3:       | 80.8 | R11: | 67.2  |
| R4:       | 71.5 | R12: | 35.9  |
| R5:       | 67.8 | R13: | 68.5  |
| R6:       | 65.6 | R14: | 89.2  |
| R7:       | 82.2 |      |       |
| R8:       | 57.2 |      |       |

**Test Conditions**

Stabilization Time: 62M  
 Operation Time: 12H  
 Room Temperature (°C) / RH%: 24.6/45%  
 Sphere Temperature (°C): 24.7

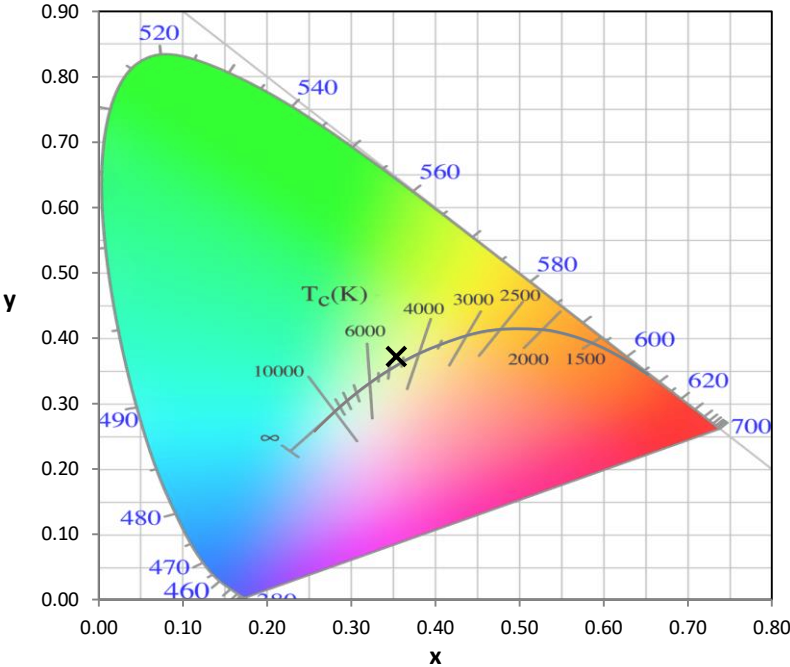


REPORT NUMBER: SP1-2006-844-1

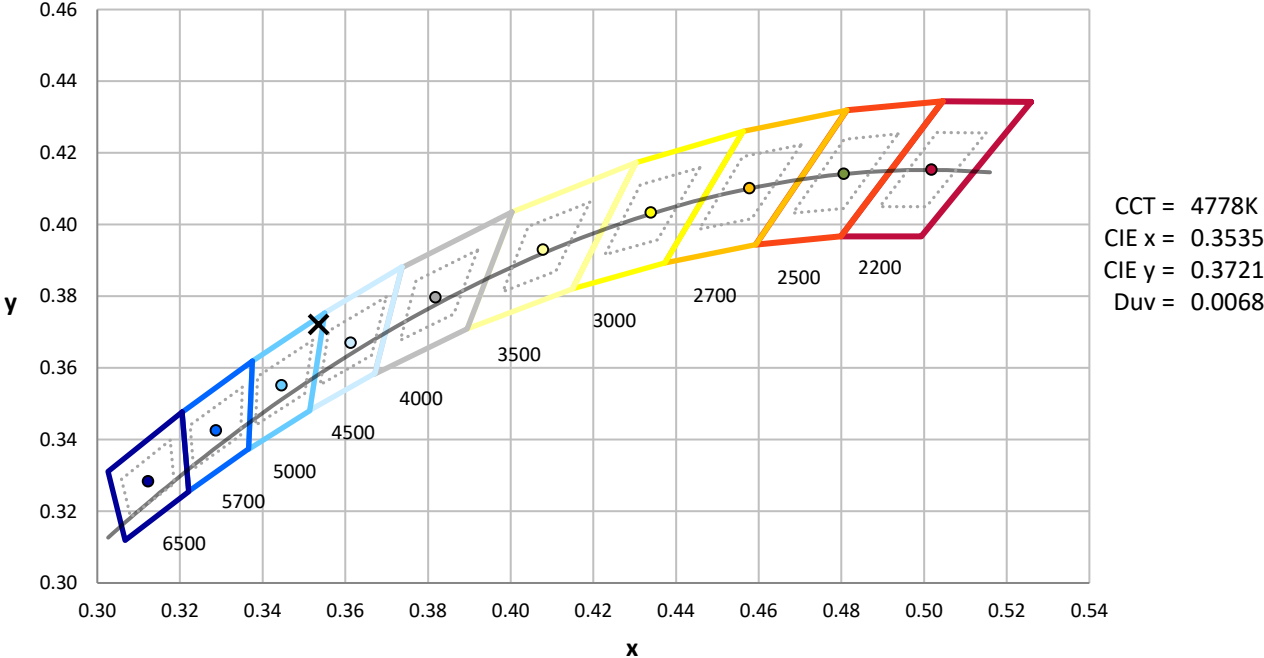
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | IN0058                | 7/29/2020        | 1/29/2021            |
| Power Meter                    | IN0071                | 12/3/2019        | 12/3/2020            |
| AC Power Source                | IN0063                | 12/3/2019        | 12/3/2020            |
| DC Power Source                | IN0208                | 12/3/2019        | 12/3/2020            |
| Sphere Thermometer             | IN0085                | 12/3/2019        | 12/3/2020            |
| Room Thermometer               | IN0046                | 12/3/2019        | 12/3/2020            |

REPORT NUMBER: SP1-2006-844-1

**CIE 1931 Chromaticity Diagram**



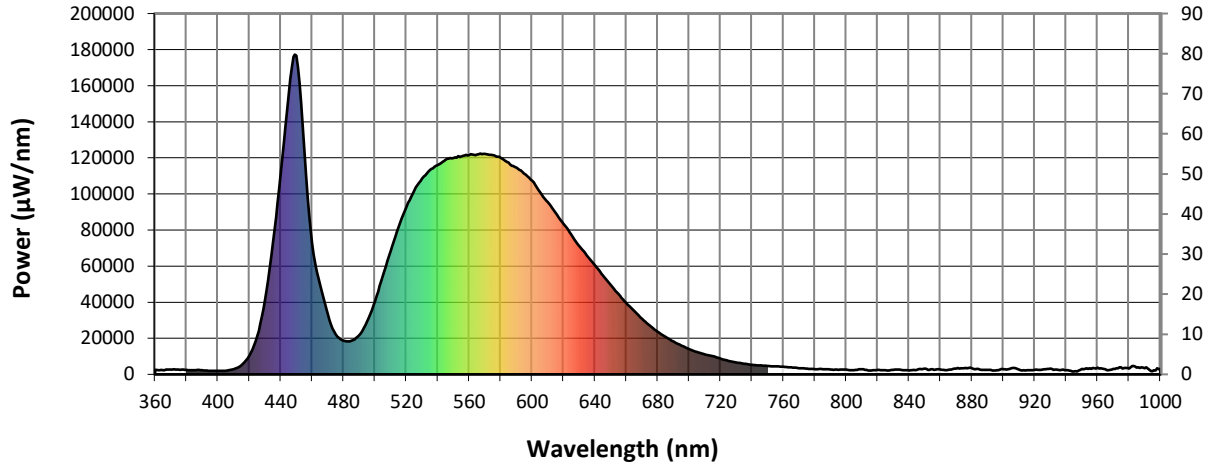
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 5000K 7-step quadrangle

REPORT NUMBER: SP1-2006-844-1

**Photopic Flux vs. Wavelength**

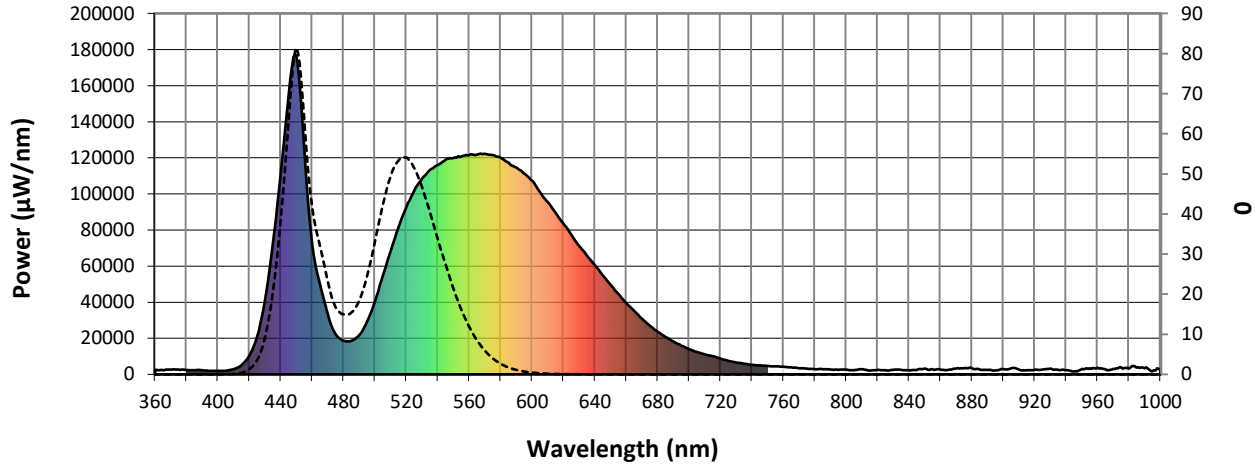


#####

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360    | 2529          | 0.0           | 490    | 21819         | 3.1           | 620    | 83437         | 21.7          | 750    | 4608          | 0.0           | 880    | 3335          | 0.0           |
| 365    | 2361          | 0.0           | 495    | 29270         | 5.3           | 625    | 77569         | 17.1          | 755    | 4412          | 0.0           | 885    | 2653          | 0.0           |
| 370    | 2648          | 0.0           | 500    | 40589         | 9.0           | 630    | 71183         | 12.9          | 760    | 4227          | 0.0           | 890    | 2411          | 0.0           |
| 375    | 2655          | 0.0           | 505    | 54498         | 15.2          | 635    | 65734         | 9.9           | 765    | 3922          | 0.0           | 895    | 2118          | 0.0           |
| 380    | 2428          | 0.0           | 510    | 68399         | 23.5          | 640    | 60418         | 7.2           | 770    | 3461          | 0.0           | 900    | 2873          | 0.0           |
| 385    | 2334          | 0.0           | 515    | 81428         | 33.7          | 645    | 54736         | 5.3           | 775    | 3226          | 0.0           | 905    | 3367          | 0.0           |
| 390    | 2269          | 0.0           | 520    | 92826         | 45.0          | 650    | 49620         | 3.6           | 780    | 2883          | 0.0           | 910    | 2749          | 0.0           |
| 395    | 2020          | 0.0           | 525    | 101684        | 54.6          | 655    | 44517         | 2.6           | 785    | 2864          | 0.0           | 915    | 2283          | 0.0           |
| 400    | 1873          | 0.0           | 530    | 108580        | 63.9          | 660    | 39493         | 1.6           | 790    | 2715          | 0.0           | 920    | 2425          | 0.0           |
| 405    | 2015          | 0.0           | 535    | 113290        | 70.3          | 665    | 35066         | 1.1           | 795    | 2547          | 0.0           | 925    | 2705          | 0.0           |
| 410    | 2831          | 0.0           | 540    | 116042        | 75.6          | 670    | 30825         | 0.7           | 800    | 2585          | 0.0           | 930    | 3144          | 0.0           |
| 415    | 5121          | 0.0           | 545    | 118948        | 79.2          | 675    | 27031         | 0.5           | 805    | 2308          | 0.0           | 935    | 2539          | 0.0           |
| 420    | 10348         | 0.0           | 550    | 119916        | 81.5          | 680    | 23555         | 0.3           | 810    | 2796          | 0.0           | 940    | 2288          | 0.0           |
| 425    | 21288         | 0.1           | 555    | 120734        | 82.5          | 685    | 20841         | 0.2           | 815    | 2196          | 0.0           | 945    | 1604          | 0.0           |
| 430    | 41173         | 0.3           | 560    | 121523        | 82.6          | 690    | 18232         | 0.1           | 820    | 2415          | 0.0           | 950    | 3031          | 0.0           |
| 435    | 73003         | 0.9           | 565    | 121859        | 81.0          | 695    | 16035         | 0.1           | 825    | 2281          | 0.0           | 955    | 3356          | 0.0           |
| 440    | 111013        | 1.7           | 570    | 122246        | 79.5          | 700    | 14010         | 0.0           | 830    | 2524          | 0.0           | 960    | 3704          | 0.0           |
| 445    | 154787        | 3.2           | 575    | 121449        | 75.6          | 705    | 12408         | 0.0           | 835    | 2461          | 0.0           | 965    | 2847          | 0.0           |
| 450    | 176733        | 4.6           | 580    | 120111        | 71.4          | 710    | 11063         | 0.0           | 840    | 2195          | 0.0           | 970    | 2985          | 0.0           |
| 455    | 124334        | 4.2           | 585    | 117354        | 65.2          | 715    | 10136         | 0.0           | 845    | 2487          | 0.0           | 975    | 3963          | 0.0           |
| 460    | 72664         | 3.0           | 590    | 114565        | 59.2          | 720    | 8693          | 0.0           | 850    | 3144          | 0.0           | 980    | 3221          | 0.0           |
| 465    | 49806         | 2.6           | 595    | 111127        | 52.7          | 725    | 7522          | 0.0           | 855    | 2809          | 0.0           | 985    | 3794          | 0.0           |
| 470    | 32995         | 2.1           | 600    | 107253        | 46.2          | 730    | 6612          | 0.0           | 860    | 2621          | 0.0           | 990    | 3296          | 0.0           |
| 475    | 22184         | 1.7           | 605    | 101156        | 39.2          | 735    | 5947          | 0.0           | 865    | 2410          | 0.0           | 995    | 1779          | 0.0           |
| 480    | 18691         | 1.8           | 610    | 95370         | 32.8          | 740    | 5253          | 0.0           | 870    | 3143          | 0.0           | 1000   | 2977          | 0.0           |
| 485    | 18593         | 2.2           | 615    | 89556         | 27.0          | 745    | 5032          | 0.0           | 875    | 3421          | 0.0           |        |               |               |

REPORT NUMBER: SP1-2006-844-1

**Scotopic Flux vs. Wavelength**



**Scotopic Lumens: 4867.6**

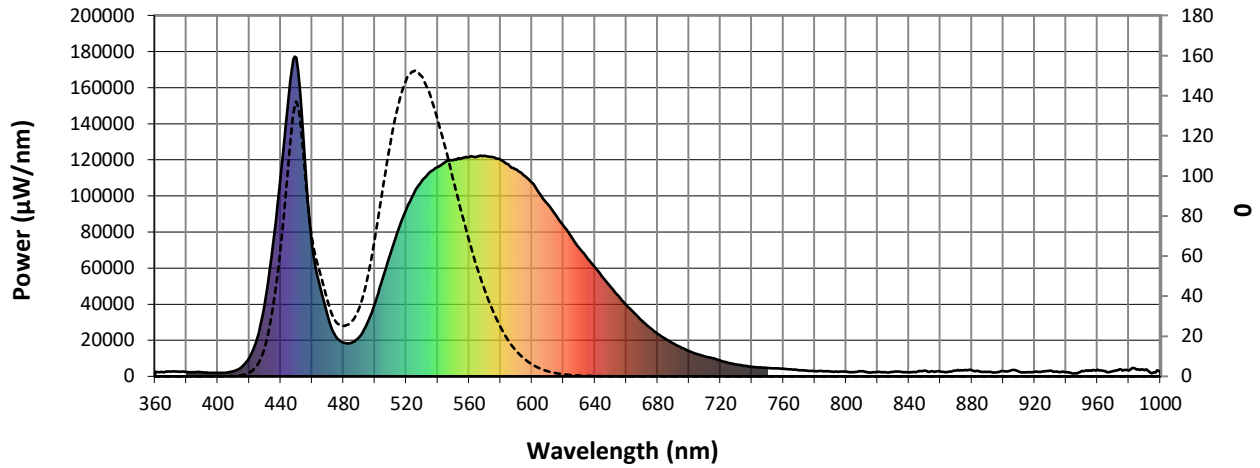
**S/P: 0.66**

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360    | 2529          | 0.0           | 490    | 21819         | 33.6          | 620    | 83437         | 1.0           | 750    | 4608          | 0.0           | 880    | 3335          | 0.0           |
| 365    | 2361          | 0.0           | 495    | 29270         | 47.3          | 625    | 77569         | 0.7           | 755    | 4412          | 0.0           | 885    | 2653          | 0.0           |
| 370    | 2648          | 0.0           | 500    | 40589         | 67.9          | 630    | 71183         | 0.4           | 760    | 4227          | 0.0           | 890    | 2411          | 0.0           |
| 375    | 2655          | 0.0           | 505    | 54498         | 92.6          | 635    | 65734         | 0.2           | 765    | 3922          | 0.0           | 895    | 2118          | 0.0           |
| 380    | 2428          | 0.0           | 510    | 68399         | 115.9         | 640    | 60418         | 0.2           | 770    | 3461          | 0.0           | 900    | 2873          | 0.0           |
| 385    | 2334          | 0.0           | 515    | 81428         | 135.0         | 645    | 54736         | 0.1           | 775    | 3226          | 0.0           | 905    | 3367          | 0.0           |
| 390    | 2269          | 0.0           | 520    | 92826         | 147.5         | 650    | 49620         | 0.1           | 780    | 2883          | 0.0           | 910    | 2749          | 0.0           |
| 395    | 2020          | 0.0           | 525    | 101684        | 152.1         | 655    | 44517         | 0.0           | 785    | 2864          | 0.0           | 915    | 2283          | 0.0           |
| 400    | 1873          | 0.0           | 530    | 108580        | 149.7         | 660    | 39493         | 0.0           | 790    | 2715          | 0.0           | 920    | 2425          | 0.0           |
| 405    | 2015          | 0.1           | 535    | 113290        | 141.2         | 665    | 35066         | 0.0           | 795    | 2547          | 0.0           | 925    | 2705          | 0.0           |
| 410    | 2831          | 0.2           | 540    | 116042        | 128.2         | 670    | 30825         | 0.0           | 800    | 2585          | 0.0           | 930    | 3144          | 0.0           |
| 415    | 5121          | 0.5           | 545    | 118948        | 114.0         | 675    | 27031         | 0.0           | 805    | 2308          | 0.0           | 935    | 2539          | 0.0           |
| 420    | 10348         | 1.7           | 550    | 119916        | 98.1          | 680    | 23555         | 0.0           | 810    | 2796          | 0.0           | 940    | 2288          | 0.0           |
| 425    | 21288         | 5.2           | 555    | 120734        | 82.5          | 685    | 20841         | 0.0           | 815    | 2196          | 0.0           | 945    | 1604          | 0.0           |
| 430    | 41173         | 14.0          | 560    | 121523        | 67.9          | 690    | 18232         | 0.0           | 820    | 2415          | 0.0           | 950    | 3031          | 0.0           |
| 435    | 73003         | 32.6          | 565    | 121859        | 54.7          | 695    | 16035         | 0.0           | 825    | 2281          | 0.0           | 955    | 3356          | 0.0           |
| 440    | 111013        | 62.0          | 570    | 122246        | 43.1          | 700    | 14010         | 0.0           | 830    | 2524          | 0.0           | 960    | 3704          | 0.0           |
| 445    | 154787        | 103.6         | 575    | 121449        | 33.1          | 705    | 12408         | 0.0           | 835    | 2461          | 0.0           | 965    | 2847          | 0.0           |
| 450    | 176733        | 137.0         | 580    | 120111        | 24.7          | 710    | 11063         | 0.0           | 840    | 2195          | 0.0           | 970    | 2985          | 0.0           |
| 455    | 124334        | 108.6         | 585    | 117354        | 17.9          | 715    | 10136         | 0.0           | 845    | 2487          | 0.0           | 975    | 3963          | 0.0           |
| 460    | 72664         | 70.2          | 590    | 114565        | 12.8          | 720    | 8693          | 0.0           | 850    | 3144          | 0.0           | 980    | 3221          | 0.0           |
| 465    | 49806         | 52.6          | 595    | 111127        | 8.9           | 725    | 7522          | 0.0           | 855    | 2809          | 0.0           | 985    | 3794          | 0.0           |
| 470    | 32995         | 38.0          | 600    | 107253        | 6.0           | 730    | 6612          | 0.0           | 860    | 2621          | 0.0           | 990    | 3296          | 0.0           |
| 475    | 22184         | 27.7          | 605    | 101156        | 4.0           | 735    | 5947          | 0.0           | 865    | 2410          | 0.0           | 995    | 1779          | 0.0           |
| 480    | 18691         | 25.2          | 610    | 95370         | 2.6           | 740    | 5253          | 0.0           | 870    | 3143          | 0.0           | 1000   | 2977          | 0.0           |
| 485    | 18593         | 27.0          | 615    | 89556         | 1.7           | 745    | 5032          | 0.0           | 875    | 3421          | 0.0           |        |               |               |



REPORT NUMBER: SP1-2006-844-1

**Melanopic Flux vs. Wavelength**

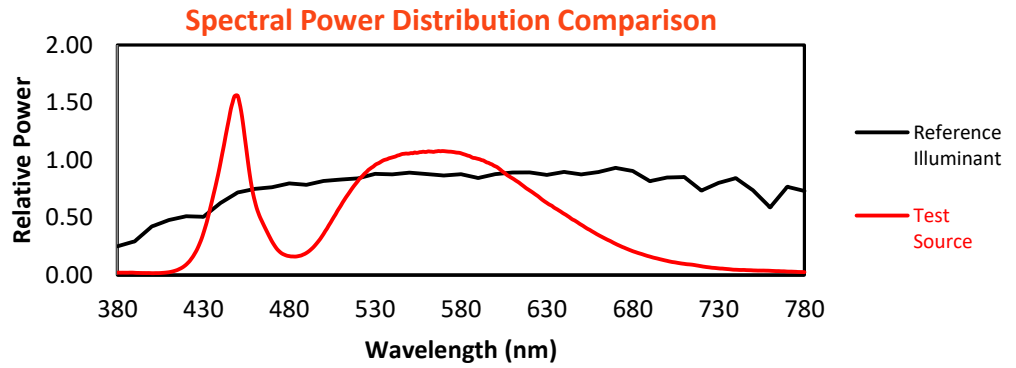


**Melanopic Lumens: 12457.9 S/P: 1.7**

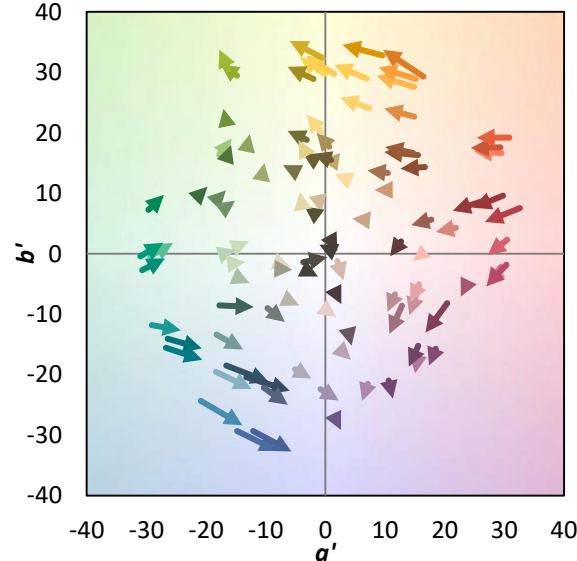
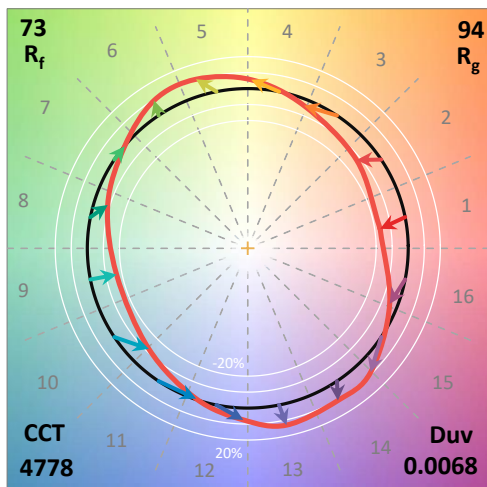
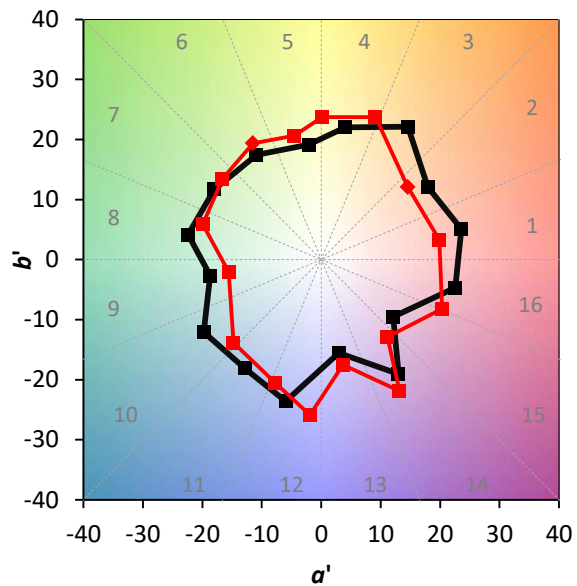
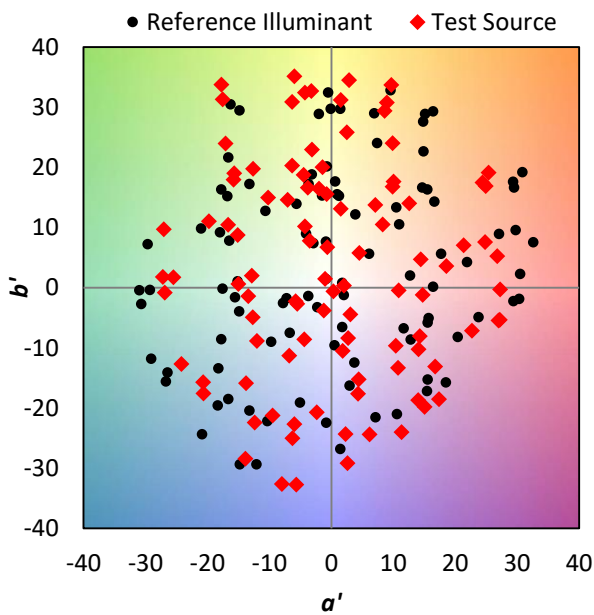
| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360    | 2529          | 0.0           | 490    | 21819         | 18.2          | 620    | 83437         | 0.1           | 750    | 4608          | 0.0           | 880    | 3335          | 0.0           |
| 365    | 2361          | 0.0           | 495    | 29270         | 24.2          | 625    | 77569         | 0.0           | 755    | 4412          | 0.0           | 885    | 2653          | 0.0           |
| 370    | 2648          | 0.0           | 500    | 40589         | 32.6          | 630    | 71183         | 0.0           | 760    | 4227          | 0.0           | 890    | 2411          | 0.0           |
| 375    | 2655          | 0.0           | 505    | 54498         | 41.8          | 635    | 65734         | 0.0           | 765    | 3922          | 0.0           | 895    | 2118          | 0.0           |
| 380    | 2428          | 0.0           | 510    | 68399         | 49.1          | 640    | 60418         | 0.0           | 770    | 3461          | 0.0           | 900    | 2873          | 0.0           |
| 385    | 2334          | 0.0           | 515    | 81428         | 53.2          | 645    | 54736         | 0.0           | 775    | 3226          | 0.0           | 905    | 3367          | 0.0           |
| 390    | 2269          | 0.0           | 520    | 92826         | 54.0          | 650    | 49620         | 0.0           | 780    | 2883          | 0.0           | 910    | 2749          | 0.0           |
| 395    | 2020          | 0.0           | 525    | 101684        | 51.6          | 655    | 44517         | 0.0           | 785    | 2864          | 0.0           | 915    | 2283          | 0.0           |
| 400    | 1873          | 0.0           | 530    | 108580        | 46.9          | 660    | 39493         | 0.0           | 790    | 2715          | 0.0           | 920    | 2425          | 0.0           |
| 405    | 2015          | 0.0           | 535    | 113290        | 40.8          | 665    | 35066         | 0.0           | 795    | 2547          | 0.0           | 925    | 2705          | 0.0           |
| 410    | 2831          | 0.1           | 540    | 116042        | 34.0          | 670    | 30825         | 0.0           | 800    | 2585          | 0.0           | 930    | 3144          | 0.0           |
| 415    | 5121          | 0.3           | 545    | 118948        | 27.6          | 675    | 27031         | 0.0           | 805    | 2308          | 0.0           | 935    | 2539          | 0.0           |
| 420    | 10348         | 1.2           | 550    | 119916        | 21.5          | 680    | 23555         | 0.0           | 810    | 2796          | 0.0           | 940    | 2288          | 0.0           |
| 425    | 21288         | 3.3           | 555    | 120734        | 16.3          | 685    | 20841         | 0.0           | 815    | 2196          | 0.0           | 945    | 1604          | 0.0           |
| 430    | 41173         | 8.7           | 560    | 121523        | 12.0          | 690    | 18232         | 0.0           | 820    | 2415          | 0.0           | 950    | 3031          | 0.0           |
| 435    | 73003         | 19.5          | 565    | 121859        | 8.6           | 695    | 16035         | 0.0           | 825    | 2281          | 0.0           | 955    | 3356          | 0.0           |
| 440    | 111013        | 37.1          | 570    | 122246        | 6.0           | 700    | 14010         | 0.0           | 830    | 2524          | 0.0           | 960    | 3704          | 0.0           |
| 445    | 154787        | 61.1          | 575    | 121449        | 4.0           | 705    | 12408         | 0.0           | 835    | 2461          | 0.0           | 965    | 2847          | 0.0           |
| 450    | 176733        | 81.4          | 580    | 120111        | 2.7           | 710    | 11063         | 0.0           | 840    | 2195          | 0.0           | 970    | 2985          | 0.0           |
| 455    | 124334        | 65.1          | 585    | 117354        | 1.7           | 715    | 10136         | 0.0           | 845    | 2487          | 0.0           | 975    | 3963          | 0.0           |
| 460    | 72664         | 42.8          | 590    | 114565        | 1.1           | 720    | 8693          | 0.0           | 850    | 3144          | 0.0           | 980    | 3221          | 0.0           |
| 465    | 49806         | 32.5          | 595    | 111127        | 0.7           | 725    | 7522          | 0.0           | 855    | 2809          | 0.0           | 985    | 3794          | 0.0           |
| 470    | 32995         | 23.6          | 600    | 107253        | 0.5           | 730    | 6612          | 0.0           | 860    | 2621          | 0.0           | 990    | 3296          | 0.0           |
| 475    | 22184         | 16.9          | 605    | 101156        | 0.3           | 735    | 5947          | 0.0           | 865    | 2410          | 0.0           | 995    | 1779          | 0.0           |
| 480    | 18691         | 15.0          | 610    | 95370         | 0.2           | 740    | 5253          | 0.0           | 870    | 3143          | 0.0           | 1000   | 2977          | 0.0           |
| 485    | 18593         | 15.3          | 615    | 89556         | 0.1           | 745    | 5032          | 0.0           | 875    | 3421          | 0.0           |        |               |               |

**Summary**

$R_f = 73.3$   
 $R_g = 94.5$   
 CIE  $R_a = 71.0$   
 $R_g = -28.7$

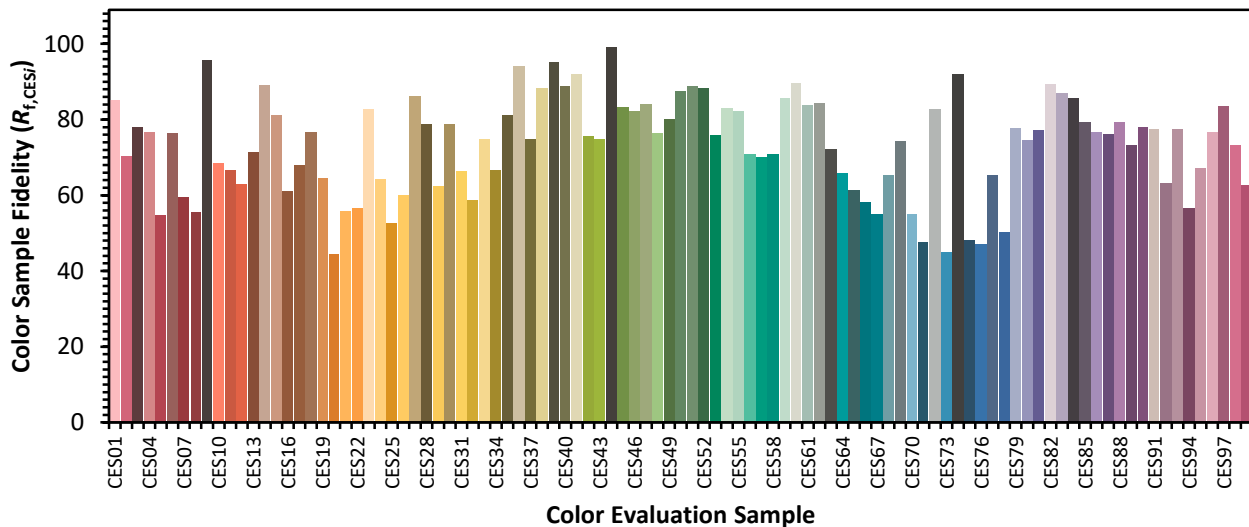


**Color Vector Graphics**

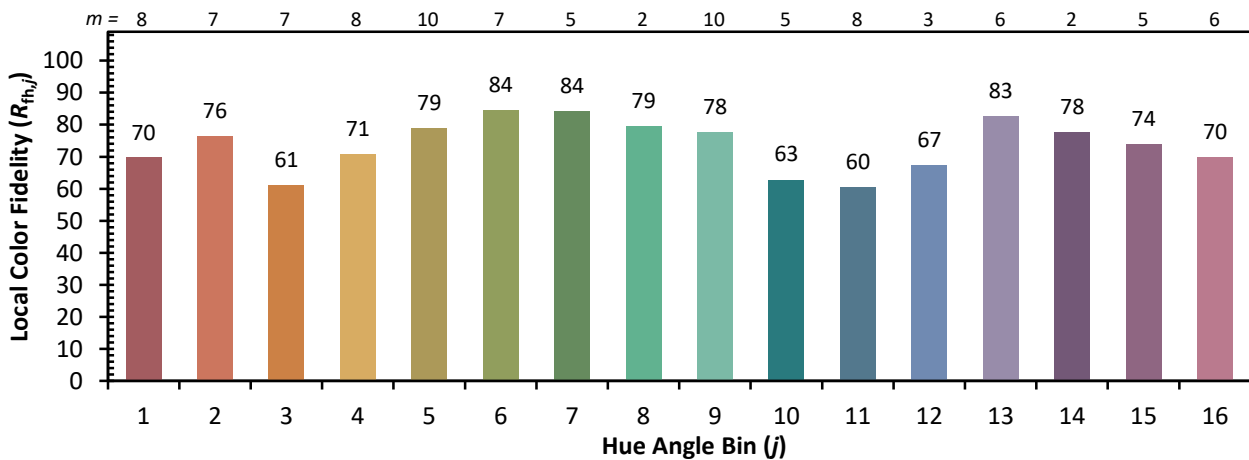
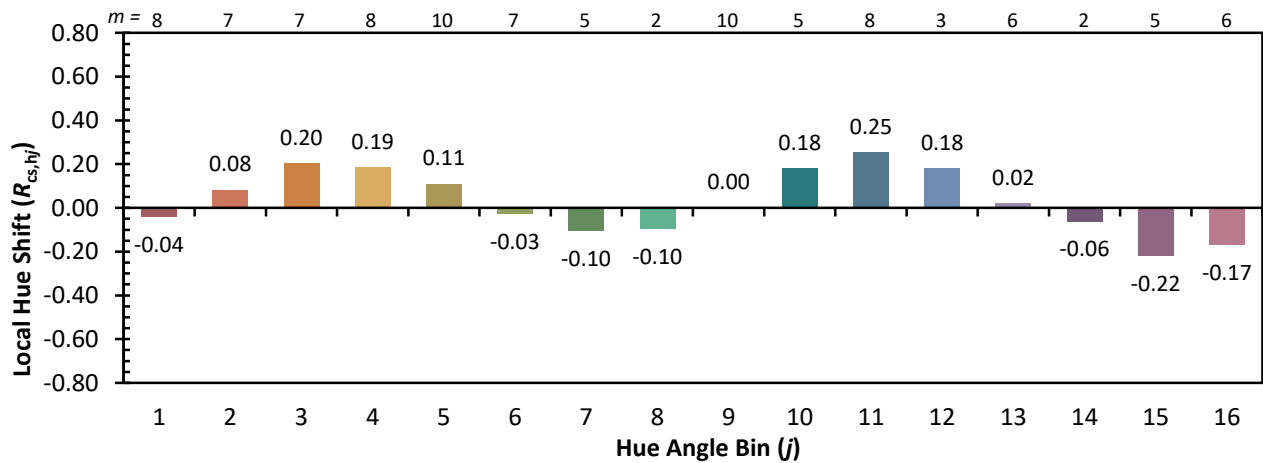
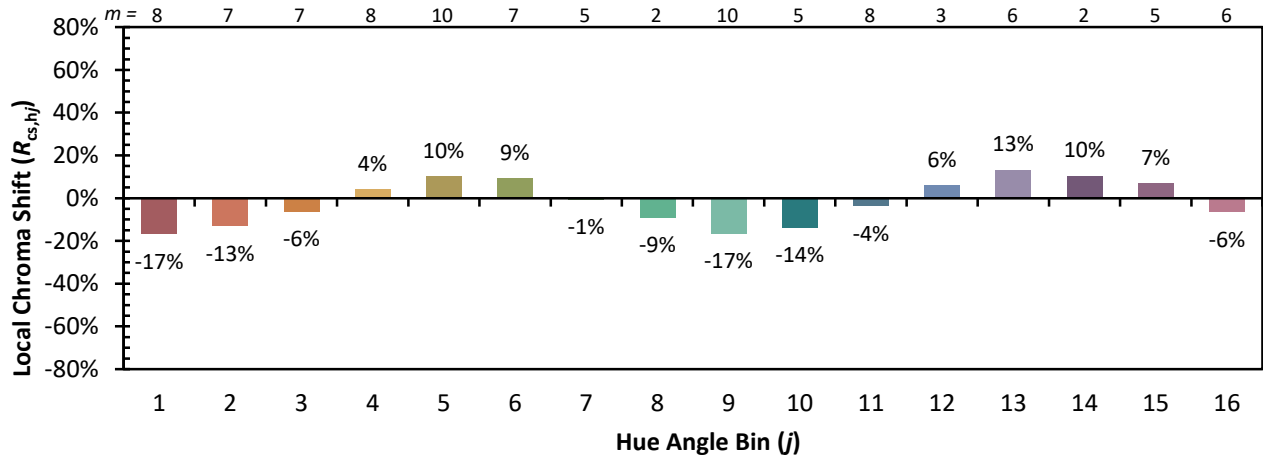


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

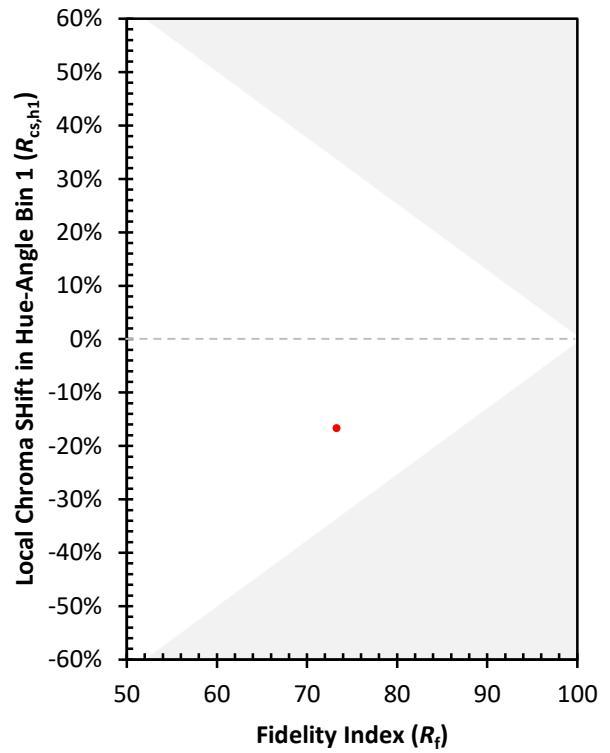
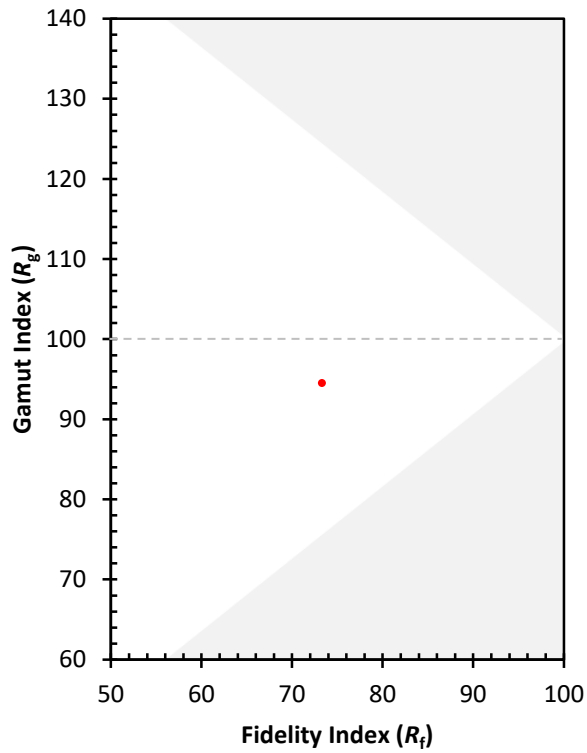
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 60 | CES51 = 89 | CES76 = 47 |
| CES02 = 59 | CES27 = 86 | CES52 = 88 | CES77 = 65 |
| CES03 = 30 | CES28 = 79 | CES53 = 76 | CES78 = 50 |
| CES04 = 69 | CES29 = 62 | CES54 = 83 | CES79 = 78 |
| CES05 = 46 | CES30 = 79 | CES55 = 82 | CES80 = 74 |
| CES06 = 50 | CES31 = 66 | CES56 = 71 | CES81 = 77 |
| CES07 = 39 | CES32 = 59 | CES57 = 70 | CES82 = 89 |
| CES08 = 38 | CES33 = 75 | CES58 = 71 | CES83 = 87 |
| CES09 = 29 | CES34 = 67 | CES59 = 86 | CES84 = 86 |
| CES10 = 72 | CES35 = 81 | CES60 = 90 | CES85 = 79 |
| CES11 = 56 | CES36 = 94 | CES61 = 84 | CES86 = 77 |
| CES12 = 61 | CES37 = 75 | CES62 = 84 | CES87 = 76 |
| CES13 = 41 | CES38 = 88 | CES63 = 72 | CES88 = 79 |
| CES14 = 74 | CES39 = 95 | CES64 = 66 | CES89 = 73 |
| CES15 = 70 | CES40 = 89 | CES65 = 61 | CES90 = 78 |
| CES16 = 46 | CES41 = 92 | CES66 = 58 | CES91 = 77 |
| CES17 = 49 | CES42 = 75 | CES67 = 55 | CES92 = 63 |
| CES18 = 55 | CES43 = 75 | CES68 = 65 | CES93 = 78 |
| CES19 = 71 | CES44 = 99 | CES69 = 74 | CES94 = 57 |
| CES20 = 64 | CES45 = 83 | CES70 = 55 | CES95 = 67 |
| CES21 = 85 | CES46 = 82 | CES71 = 48 | CES96 = 77 |
| CES22 = 77 | CES47 = 84 | CES72 = 83 | CES97 = 84 |
| CES23 = 91 | CES48 = 76 | CES73 = 45 | CES98 = 73 |
| CES24 = 90 | CES49 = 80 | CES74 = 92 | CES99 = 63 |
| CES25 = 71 | CES50 = 88 | CES75 = 48 |            |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)