

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



Scaled data based on original data using  
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions  
(formerly Eaton)

Brand: McGRAW-EDISON

Report Number: P821368

Luminaire Tested: **TT-D1-740-12VDC-5CQ-PM-HSS**

Issue Date: 12/2/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P821368  
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-D1-740-12VDC-5CQ-PM-HSS  
Description: TOPTIER LED SITE LUMINAIRE  
4000K, 70 CRI LEDS AND CONCENTRATED DISTRIBUTION WITH HOUSE SIDE SHIELD  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

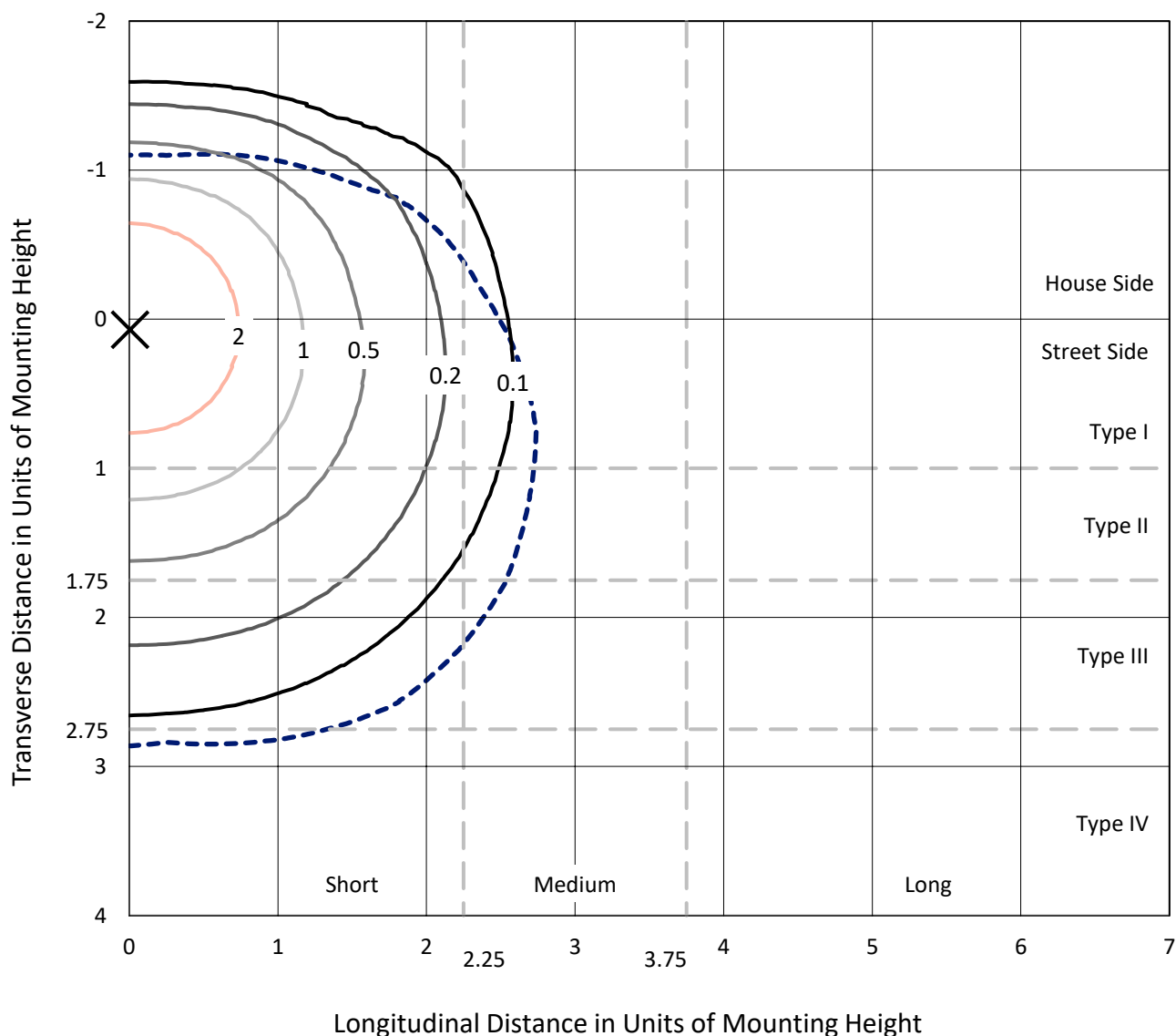
Lumens per Lamp: N/A  
Luminaire Lumens: 3239.9 lumens  
Efficiency: N/A  
Efficacy: 115.7 lumens/watt  
Luminous Opening: Circular (Dia: 1.12' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B1 - U1 - G1

Input Watts (W): 28  
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: 25 FT

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## Iso-Footcandle Lines of Horizontal Illumination

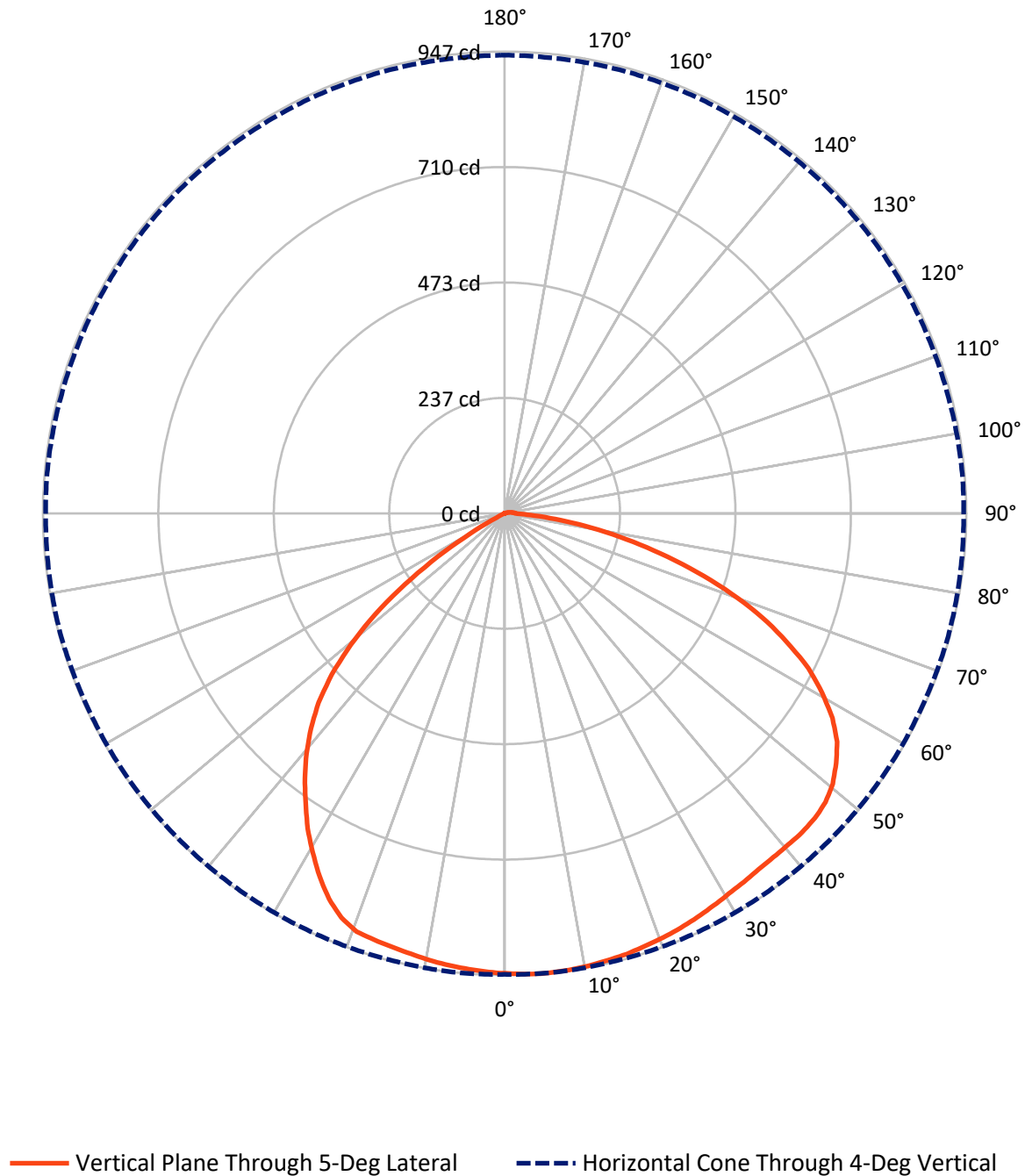
× Max cd  
 --- 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 4.2 fc  
 Type IV - Short - N/A

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## Luminous Intensity Polar Plot



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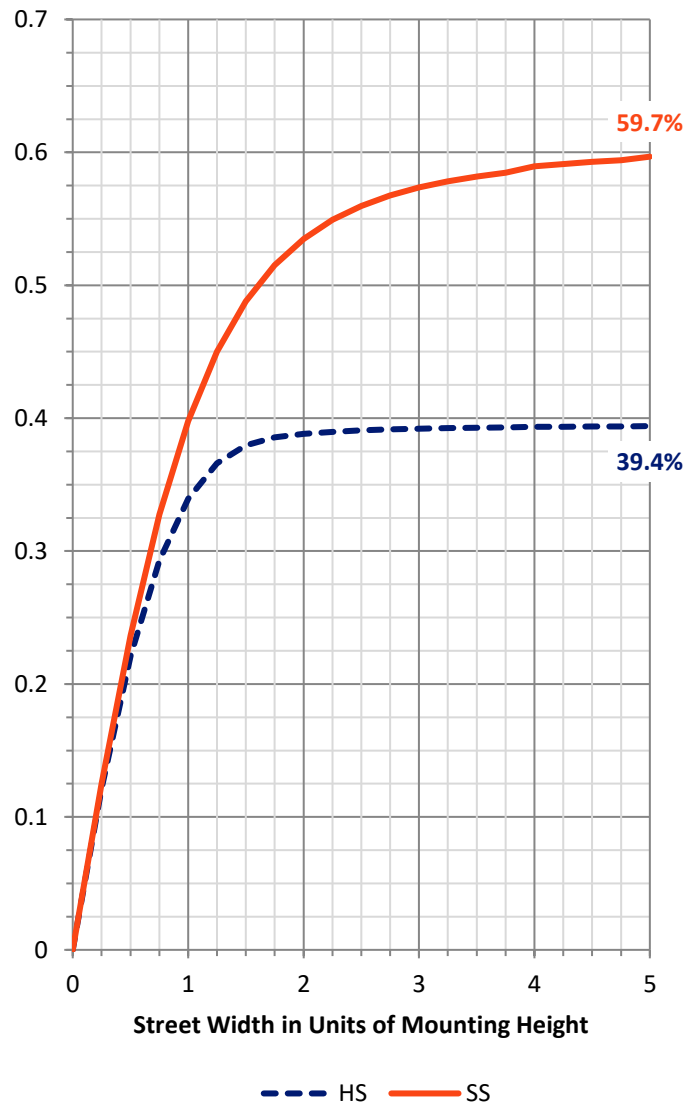
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 1284.0   | 1.6    | 1285.6 |
|                    | % Fixture | 39.6     | 0.1    | 39.7   |
| <b>Street Side</b> | Lumens    | 1945.3   | 9.0    | 1954.3 |
|                    | % Fixture | 60.0     | 0.3    | 60.3   |
| <b>Total</b>       | Lumens    | 3229.3   | 10.6   | 3239.9 |
|                    | % Fixture | 99.7     | 0.3    | 100.0  |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 89.7   | 2.8       |
| 10°-20°   | 262.6  | 8.1       |
| 20°-30°   | 413.8  | 12.8      |
| 30°-40°   | 526.7  | 16.3      |
| 40°-50°   | 608.3  | 18.8      |
| 50°-60°   | 595.6  | 18.4      |
| 60°-70°   | 443.6  | 13.7      |
| 70°-80°   | 240.3  | 7.4       |
| 80°-90°   | 48.7   | 1.5       |
| 90°-100°  | 6.2    | 0.2       |
| 100°-110° | 2.4    | 0.1       |
| 110°-120° | 0.7    | 0.0       |
| 120°-130° | 0.5    | 0.0       |
| 130°-140° | 0.4    | 0.0       |
| 140°-150° | 0.3    | 0.0       |
| 150°-160° | 0.2    | 0.0       |
| 160°-170° | 0.1    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-90°    | 3229.3 | 99.7      |
| 0°-180°   | 3239.9 | 100.0     |



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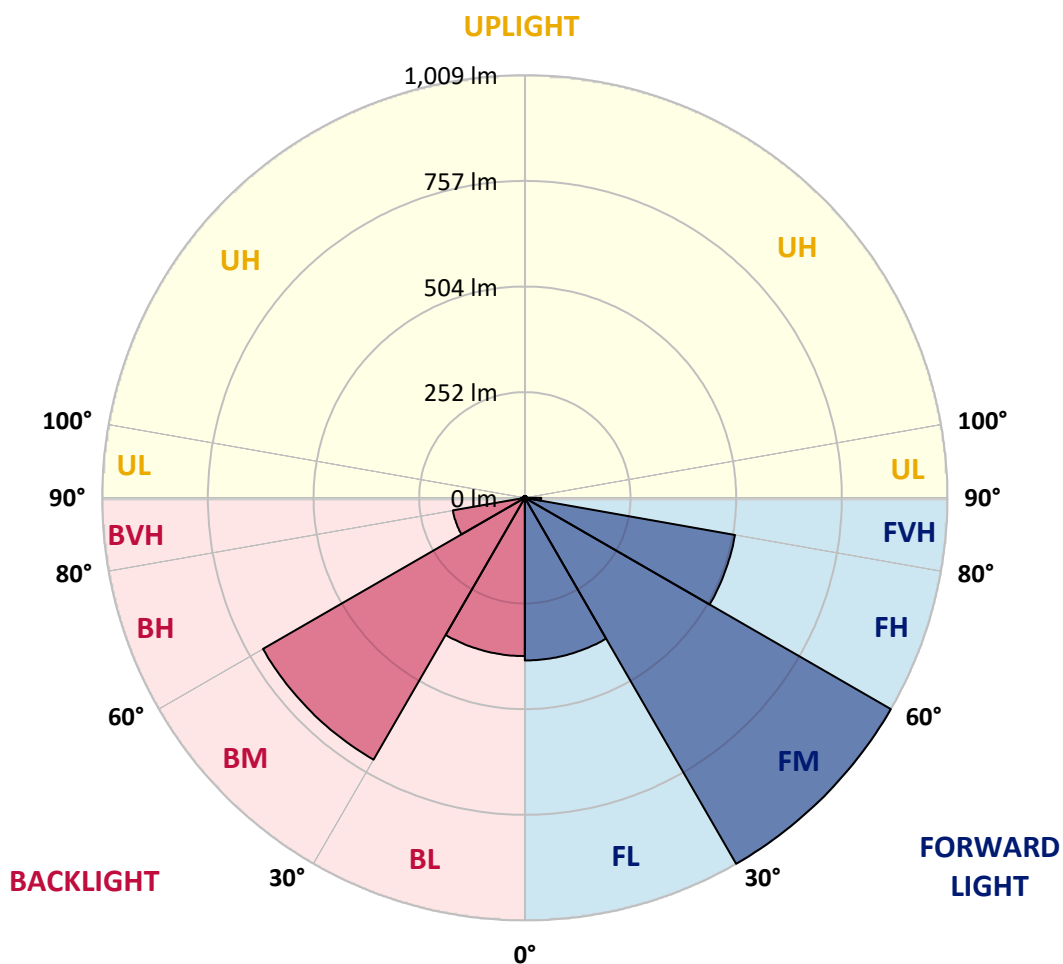
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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |       |        |
|------|-------------|--------|-----------|-------------------------|-------|--------|
|      |             |        |           | B                       | U     | G      |
| FL   | (0°-30°)    | 388.2  | 12.0      |                         |       |        |
| FM   | (30°-60°)   | 1008.8 | 31.1      |                         |       |        |
| FH   | (60°-80°)   | 509.4  | 15.7      |                         |       | G0/660 |
| FVH  | (80°-90°)   | 38.9   | 1.2       |                         |       | G1/100 |
| BL   | (0°-30°)    | 377.9  | 11.7      | B1/500                  |       |        |
| BM   | (30°-60°)   | 721.8  | 22.3      | B1/1000                 |       |        |
| BH   | (60°-80°)   | 174.5  | 5.4       | B1/500                  |       | G1/500 |
| BVH  | (80°-90°)   | 9.8    | 0.3       |                         |       | G0/10  |
| UL   | (90°-100°)  | 6.2    | 0.2       |                         | U1/10 |        |
| UH   | (100°-180°) | 4.5    | 0.1       |                         | U1/10 |        |

**BUG Rating: B1-U1-G1**

Type IV Short



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**CANDELA DISTRIBUTION (FULL):**

|        | 0°    | 5°    | 15°   | 25°   | 35°   | 45°   | 55°   | 65°   | 75°   | 85°   | 90°   |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°     | 943.7 | 943.7 | 943.7 | 943.7 | 943.7 | 943.7 | 943.7 | 943.7 | 943.7 | 943.7 | 943.7 |
| 2.5°   | 944.9 | 946.1 | 945.5 | 945.5 | 944.3 | 944.9 | 944.3 | 944.3 | 943.7 | 943.1 | 943.1 |
| 4°     | 945.5 | 946.7 | 945.5 | 945.5 | 944.9 | 944.9 | 944.3 | 943.1 | 943.7 | 941.8 | 941.2 |
| 5°     | 946.1 | 946.7 | 946.1 | 946.1 | 944.9 | 944.3 | 943.1 | 943.1 | 942.5 | 941.2 | 941.2 |
| 7.5°   | 944.9 | 945.5 | 945.5 | 944.9 | 943.7 | 942.5 | 941.8 | 941.2 | 940.6 | 938.8 | 938.8 |
| 10°    | 942.5 | 943.7 | 942.5 | 942.5 | 941.8 | 940.6 | 938.8 | 938.2 | 936.4 | 935.1 | 934.5 |
| 12.5°  | 940.0 | 940.6 | 940.0 | 940.0 | 938.8 | 937.0 | 936.4 | 935.1 | 932.7 | 930.9 | 930.9 |
| 15°    | 936.4 | 937.6 | 937.0 | 936.4 | 935.8 | 933.9 | 932.1 | 930.3 | 928.4 | 926.6 | 926.6 |
| 17.5°  | 932.1 | 932.7 | 933.3 | 932.7 | 931.5 | 930.3 | 928.4 | 926.0 | 924.2 | 922.4 | 921.7 |
| 20°    | 927.2 | 928.4 | 928.4 | 928.4 | 927.2 | 926.0 | 923.6 | 921.1 | 919.9 | 917.5 | 916.9 |
| 22.5°  | 922.4 | 923.6 | 923.0 | 923.6 | 923.0 | 921.1 | 918.7 | 916.3 | 913.8 | 912.0 | 910.8 |
| 25°    | 917.5 | 917.5 | 917.5 | 917.5 | 917.5 | 915.0 | 912.6 | 909.6 | 907.1 | 904.1 | 904.1 |
| 27.5°  | 911.4 | 911.4 | 912.0 | 912.0 | 911.4 | 909.6 | 906.5 | 902.9 | 899.2 | 896.2 | 894.9 |
| 30°    | 905.9 | 905.3 | 906.5 | 907.7 | 907.1 | 905.3 | 901.6 | 897.4 | 891.9 | 887.6 | 884.0 |
| 32.5°  | 899.2 | 901.0 | 902.2 | 904.7 | 905.3 | 902.9 | 898.6 | 893.1 | 887.6 | 879.7 | 873.0 |
| 35°    | 896.8 | 896.8 | 899.8 | 903.5 | 904.7 | 903.5 | 897.4 | 891.3 | 883.4 | 871.8 | 863.9 |
| 37.5°  | 894.3 | 894.9 | 899.8 | 905.3 | 907.1 | 907.1 | 900.4 | 892.5 | 881.5 | 865.1 | 855.3 |
| 40°    | 893.1 | 894.3 | 900.4 | 908.3 | 913.2 | 912.6 | 904.7 | 894.9 | 881.5 | 860.2 | 848.0 |
| 42.5°  | 891.9 | 894.3 | 901.0 | 912.0 | 919.3 | 918.7 | 910.2 | 897.4 | 880.3 | 854.1 | 840.1 |
| 45°    | 890.1 | 891.9 | 901.0 | 915.0 | 924.8 | 926.6 | 916.9 | 900.4 | 880.3 | 848.6 | 830.4 |
| 47.5°  | 884.6 | 885.2 | 897.4 | 913.8 | 928.4 | 930.9 | 921.1 | 901.6 | 877.9 | 839.5 | 818.2 |
| 50°    | 870.0 | 871.8 | 885.8 | 907.7 | 924.8 | 928.4 | 919.9 | 898.6 | 871.8 | 824.3 | 798.7 |
| 52.5°  | 851.1 | 851.1 | 868.1 | 892.5 | 913.2 | 919.3 | 911.4 | 887.6 | 856.6 | 801.7 | 772.5 |
| 55°    | 823.0 | 827.3 | 845.0 | 870.6 | 893.1 | 901.6 | 890.7 | 867.5 | 831.6 | 773.1 | 740.8 |
| 57.5°  | 791.4 | 792.6 | 810.9 | 841.3 | 864.5 | 870.0 | 860.8 | 833.4 | 798.7 | 739.0 | 700.6 |
| 60°    | 745.7 | 748.1 | 771.3 | 798.1 | 823.0 | 830.4 | 818.8 | 791.4 | 754.8 | 695.1 | 656.1 |
| 62.5°  | 695.1 | 698.8 | 719.5 | 746.9 | 770.7 | 782.2 | 768.2 | 739.6 | 703.6 | 642.7 | 608.6 |
| 65°    | 634.2 | 635.4 | 658.0 | 689.0 | 712.8 | 717.0 | 704.9 | 676.8 | 640.9 | 582.4 | 551.9 |
| 67.5°  | 564.1 | 570.2 | 592.2 | 615.3 | 636.0 | 640.9 | 632.4 | 600.1 | 571.4 | 519.7 | 489.8 |
| 70°    | 496.5 | 493.5 | 511.7 | 534.9 | 553.8 | 558.0 | 548.3 | 518.4 | 491.6 | 442.9 | 419.7 |
| 72.5°  | 414.9 | 412.4 | 431.9 | 449.6 | 467.9 | 465.4 | 455.7 | 431.9 | 408.8 | 367.4 | 346.0 |
| 75°    | 332.6 | 330.2 | 345.4 | 360.7 | 369.8 | 371.0 | 364.3 | 346.6 | 321.7 | 289.4 | 272.9 |
| 77.5°  | 252.2 | 254.7 | 261.4 | 274.1 | 282.7 | 286.3 | 274.8 | 257.1 | 241.2 | 216.3 | 204.1 |
| 80°    | 179.7 | 180.3 | 182.8 | 191.9 | 198.0 | 198.0 | 192.5 | 178.5 | 160.8 | 143.2 | 137.1 |
| 82.5°  | 113.3 | 115.8 | 115.8 | 124.9 | 124.9 | 120.0 | 117.6 | 108.4 | 99.3  | 85.3  | 76.8  |
| 85°    | 62.1  | 60.9  | 64.6  | 65.2  | 64.6  | 60.9  | 57.3  | 51.8  | 45.7  | 35.9  | 32.3  |
| 87.5°  | 27.4  | 26.8  | 26.8  | 26.8  | 26.2  | 23.8  | 20.1  | 15.8  | 11.0  | 6.7   | 4.9   |
| 90°    | 21.3  | 21.3  | 20.7  | 19.5  | 17.7  | 15.8  | 12.8  | 9.7   | 6.1   | 2.4   | 1.2   |
| 92.5°  | 19.5  | 19.5  | 18.9  | 18.3  | 16.4  | 14.6  | 11.6  | 8.5   | 5.5   | 2.4   | 1.2   |
| 95°    | 17.1  | 16.4  | 16.4  | 15.2  | 14.0  | 12.2  | 10.4  | 7.3   | 4.9   | 1.8   | 1.2   |
| 97.5°  | 14.0  | 13.4  | 13.4  | 12.8  | 11.6  | 9.7   | 8.5   | 6.1   | 4.3   | 1.8   | 1.2   |
| 100°   | 10.4  | 11.0  | 10.4  | 9.7   | 9.1   | 7.9   | 6.7   | 4.9   | 3.0   | 1.2   | 1.2   |
| 102.5° | 7.9   | 7.9   | 7.3   | 7.3   | 6.7   | 6.1   | 4.9   | 3.7   | 2.4   | 1.2   | 0.6   |
| 105°   | 5.5   | 5.5   | 5.5   | 4.9   | 4.9   | 4.3   | 3.7   | 2.4   | 1.8   | 1.2   | 0.6   |
| 107.5° | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 2.4   | 1.8   | 1.2   | 0.6   | 0.6   |



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**CANDELA DISTRIBUTION (continued):**

|        | 0°  | 5°  | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 85° | 90° |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 110°   | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.2 | 1.2 | 0.6 | 0.6 | 0.6 |
| 112.5° | 0.6 | 0.6 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 0.6 | 0.6 | 0.6 | 0.6 |
| 115°   | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 117.5° | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 120°   | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 122.5° | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 125°   | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 127.5° | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 130°   | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 132.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 135°   | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 137.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 140°   | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 142.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 145°   | 0.6 | 0.6 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 147.5° | 0.6 | 0.6 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 150°   | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 152.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 155°   | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 157.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 160°   | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 162.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 165°   | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 167.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 170°   | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 172.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 175°   | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 177.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 180°   | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |

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**CANDELA DISTRIBUTION (continued):**

|        | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°     | 943.7 | 943.7 | 943.7 | 943.7 | 943.7 | 943.7 | 943.7 | 943.7 | 943.7 | 943.7 |
| 2.5°   | 942.5 | 940.6 | 941.8 | 941.2 | 941.8 | 940.6 | 940.6 | 940.6 | 941.2 | 940.0 |
| 4°     | 941.8 | 940.6 | 940.6 | 940.6 | 940.6 | 939.4 | 939.4 | 939.4 | 938.8 | 939.4 |
| 5°     | 940.6 | 940.0 | 939.4 | 938.8 | 939.4 | 938.2 | 937.6 | 937.6 | 937.6 | 938.2 |
| 7.5°   | 938.2 | 936.4 | 936.4 | 934.5 | 935.1 | 934.5 | 933.9 | 934.5 | 933.9 | 933.9 |
| 10°    | 933.9 | 932.7 | 932.1 | 930.9 | 930.9 | 929.7 | 929.1 | 929.1 | 929.1 | 928.4 |
| 12.5°  | 929.7 | 928.4 | 927.8 | 926.6 | 926.0 | 924.8 | 924.2 | 924.8 | 923.6 | 923.6 |
| 15°    | 924.8 | 923.6 | 923.0 | 923.0 | 921.7 | 920.5 | 919.9 | 918.7 | 918.7 | 918.7 |
| 17.5°  | 920.5 | 919.3 | 919.9 | 918.7 | 918.1 | 916.9 | 916.9 | 914.4 | 914.4 | 913.8 |
| 20°    | 916.3 | 915.0 | 915.0 | 914.4 | 914.4 | 913.2 | 911.4 | 910.2 | 909.6 | 909.6 |
| 22.5°  | 910.8 | 908.9 | 905.9 | 901.6 | 899.2 | 897.4 | 896.8 | 894.9 | 894.3 | 893.1 |
| 25°    | 902.2 | 897.4 | 890.7 | 883.4 | 876.1 | 872.4 | 871.2 | 868.7 | 868.7 | 868.7 |
| 27.5°  | 891.9 | 882.8 | 873.6 | 862.6 | 851.7 | 844.4 | 839.5 | 837.1 | 835.8 | 835.8 |
| 30°    | 878.5 | 866.9 | 854.1 | 840.1 | 827.9 | 814.5 | 806.0 | 801.1 | 798.7 | 799.3 |
| 32.5°  | 866.3 | 851.7 | 837.1 | 819.4 | 802.9 | 787.1 | 772.5 | 765.2 | 762.1 | 760.9 |
| 35°    | 854.1 | 837.7 | 820.0 | 801.1 | 779.8 | 756.6 | 737.1 | 726.2 | 720.1 | 720.7 |
| 37.5°  | 845.0 | 825.5 | 806.0 | 782.8 | 758.5 | 730.4 | 705.5 | 687.8 | 680.5 | 681.7 |
| 40°    | 835.2 | 813.3 | 792.0 | 765.2 | 736.5 | 703.0 | 670.7 | 647.0 | 638.5 | 636.6 |
| 42.5°  | 826.1 | 800.5 | 776.1 | 747.5 | 711.6 | 673.8 | 634.2 | 606.2 | 593.4 | 591.5 |
| 45°    | 814.5 | 785.9 | 759.7 | 726.8 | 687.2 | 640.3 | 594.0 | 557.4 | 544.0 | 538.5 |
| 47.5°  | 799.3 | 767.6 | 738.4 | 700.6 | 657.3 | 604.3 | 546.5 | 501.4 | 484.3 | 480.1 |
| 50°    | 776.7 | 740.2 | 710.3 | 667.7 | 615.3 | 556.8 | 492.2 | 436.8 | 414.3 | 411.2 |
| 52.5°  | 746.9 | 709.7 | 676.2 | 627.5 | 563.5 | 494.7 | 421.6 | 364.3 | 338.1 | 336.3 |
| 55°    | 711.0 | 670.7 | 634.2 | 579.4 | 504.4 | 424.6 | 348.5 | 276.0 | 250.4 | 247.3 |
| 57.5°  | 668.9 | 627.5 | 587.9 | 520.3 | 433.8 | 344.8 | 256.5 | 187.0 | 162.7 | 156.6 |
| 60°    | 622.6 | 580.0 | 535.5 | 453.3 | 338.7 | 244.3 | 155.3 | 99.3  | 81.0  | 74.9  |
| 62.5°  | 577.5 | 531.2 | 484.3 | 373.4 | 232.1 | 139.5 | 70.7  | 28.6  | 18.3  | 17.7  |
| 65°    | 524.5 | 480.7 | 432.5 | 301.0 | 146.8 | 62.7  | 20.7  | 0.6   | 0.0   | 0.0   |
| 67.5°  | 463.0 | 425.8 | 383.2 | 269.3 | 129.8 | 54.8  | 17.7  | 0.6   | 0.0   | 0.0   |
| 70°    | 397.2 | 368.0 | 330.2 | 231.5 | 111.5 | 46.3  | 15.2  | 0.0   | 0.0   | 0.0   |
| 72.5°  | 327.8 | 302.8 | 274.8 | 192.5 | 92.6  | 38.4  | 12.2  | 0.0   | 0.0   | 0.0   |
| 75°    | 257.1 | 241.2 | 216.3 | 152.3 | 71.9  | 29.2  | 9.1   | 0.0   | 0.0   | 0.0   |
| 77.5°  | 190.7 | 177.9 | 159.6 | 112.1 | 54.2  | 21.3  | 6.7   | 0.0   | 0.0   | 0.0   |
| 80°    | 128.5 | 118.8 | 108.4 | 76.2  | 36.6  | 14.0  | 4.3   | 0.0   | 0.0   | 0.0   |
| 82.5°  | 74.9  | 67.6  | 60.9  | 43.3  | 20.1  | 7.9   | 1.8   | 0.0   | 0.0   | 0.0   |
| 85°    | 30.5  | 28.0  | 26.8  | 18.3  | 7.9   | 2.4   | 0.6   | 0.0   | 0.0   | 0.0   |
| 87.5°  | 3.7   | 3.0   | 3.0   | 1.8   | 0.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 90°    | 0.6   | 0.6   | 0.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 92.5°  | 0.6   | 0.6   | 0.6   | 0.6   | 0.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 95°    | 0.6   | 0.6   | 0.6   | 0.6   | 0.6   | 0.6   | 0.0   | 0.0   | 0.0   | 0.0   |
| 97.5°  | 0.6   | 0.6   | 0.6   | 0.6   | 0.6   | 0.6   | 0.6   | 0.6   | 0.6   | 0.0   |
| 100°   | 0.6   | 0.6   | 0.6   | 0.6   | 0.6   | 0.6   | 0.6   | 0.6   | 0.6   | 0.6   |
| 102.5° | 0.6   | 0.6   | 0.6   | 0.6   | 0.6   | 0.6   | 0.6   | 0.6   | 0.6   | 0.6   |
| 105°   | 0.6   | 0.6   | 0.6   | 0.6   | 0.6   | 0.6   | 0.6   | 0.6   | 0.6   | 0.6   |
| 107.5° | 0.6   | 0.6   | 0.6   | 0.6   | 0.6   | 0.6   | 0.6   | 0.6   | 0.6   | 0.6   |



REPORT NUMBER: P821368

CATALOG NUMBER: TT-D1-740-12VDC-5CQ-PM-HSS

**CANDELA DISTRIBUTION (continued):**

|        | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|--------|-----|------|------|------|------|------|------|------|------|------|
| 110°   | 0.6 | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  |
| 112.5° | 0.6 | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  |
| 115°   | 0.6 | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  |
| 117.5° | 0.6 | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  |
| 120°   | 0.6 | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  |
| 122.5° | 0.6 | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  |
| 125°   | 0.6 | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  |
| 127.5° | 0.6 | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  |
| 130°   | 0.6 | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  |
| 132.5° | 0.6 | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  |
| 135°   | 0.6 | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  |
| 137.5° | 0.6 | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.0  | 0.0  |
| 140°   | 0.6 | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.0  | 0.0  |
| 142.5° | 0.6 | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.0  | 0.0  | 0.0  |
| 145°   | 0.6 | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  |
| 147.5° | 0.6 | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.0  | 0.0  | 0.0  | 0.6  |
| 150°   | 0.6 | 0.6  | 0.6  | 0.6  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 152.5° | 0.6 | 0.6  | 0.6  | 0.6  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 155°   | 0.6 | 0.6  | 0.6  | 0.6  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 157.5° | 0.6 | 0.6  | 0.6  | 0.6  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 160°   | 0.6 | 0.6  | 0.6  | 0.6  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 162.5° | 0.6 | 0.6  | 0.6  | 0.6  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 165°   | 0.6 | 0.6  | 0.6  | 0.6  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 167.5° | 0.6 | 0.6  | 0.6  | 0.6  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 170°   | 0.6 | 0.6  | 0.6  | 0.6  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 172.5° | 0.6 | 0.6  | 0.6  | 0.6  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 175°   | 0.6 | 0.6  | 0.6  | 0.6  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 177.5° | 0.6 | 0.6  | 0.6  | 0.6  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 180°   | 0.6 | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  | 0.6  |

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

Report Prepared for

Cooper Lighting Solutions

Streetworks

Report Number: SP1-2407-176-5

Test Date: 09/24/2024

Luminaire Tested: MEM2-HTN-VA-30-740-U-WQ

Data in this report applies to families of products including MEM2-HTN-VA-30-740-U-WQ

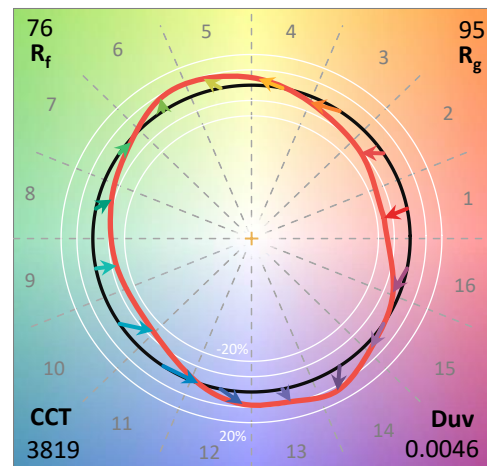
### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-176-5  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 09/27/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: Streetworks  
 Catalog Number: **MEM2-HTN-VA-30-740-U-WQ**  
 Description: EPIC MODERN VISUAL COMFORT 30W WAVESTREAM WIDE

### Spectral Parameters

CCT (K): 3819  
 CIE  $u'$ : 0.2261  
 CIE  $v'$ : 0.5108  
 Duv: 0.0046  
 CIE x: 0.3926  
 CIE y: 0.3942  
 CIE z: 0.2132  
 Peak Wavelength (nm): 450  
 Dominant Wavelength (nm): 577  
 Purity: 36.15483  
 R<sub>f</sub>: 75.6  
 R<sub>g</sub>: 94.8

CRI (Ra): 72.9  
 R1: 70.1  
 R2: 78.4  
 R3: 85.0  
 R4: 72.9  
 R5: 69.1  
 R6: 69.2  
 R7: 82.8  
 R8: 55.4  
 R9: -21.5  
 R10: 48.5  
 R11: 68.4  
 R12: 39.0  
 R13: 71.1  
 R14: 91.3  
 R15: 63.2



### Test Conditions

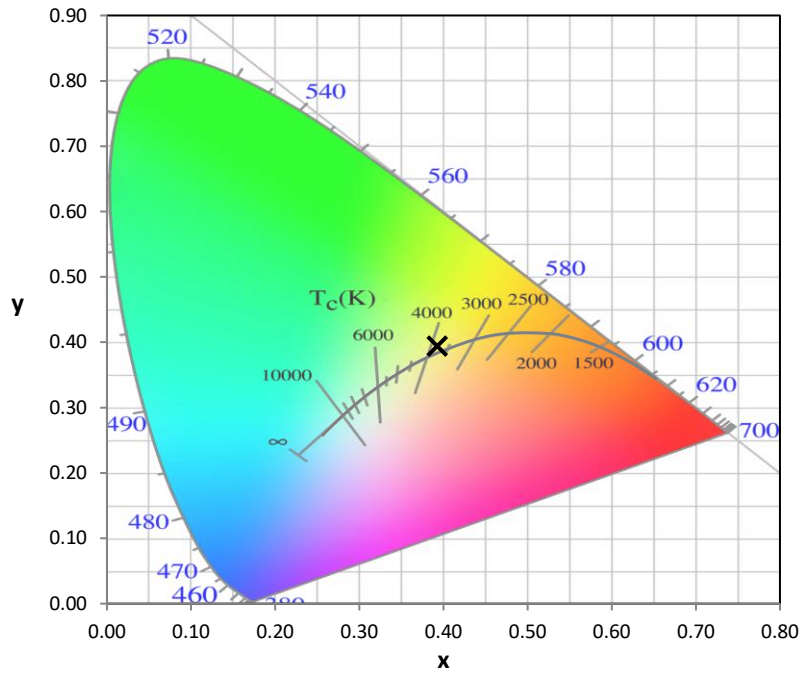
Stabilization Time: 30M  
 Operation Time: 1H 30M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-176-5

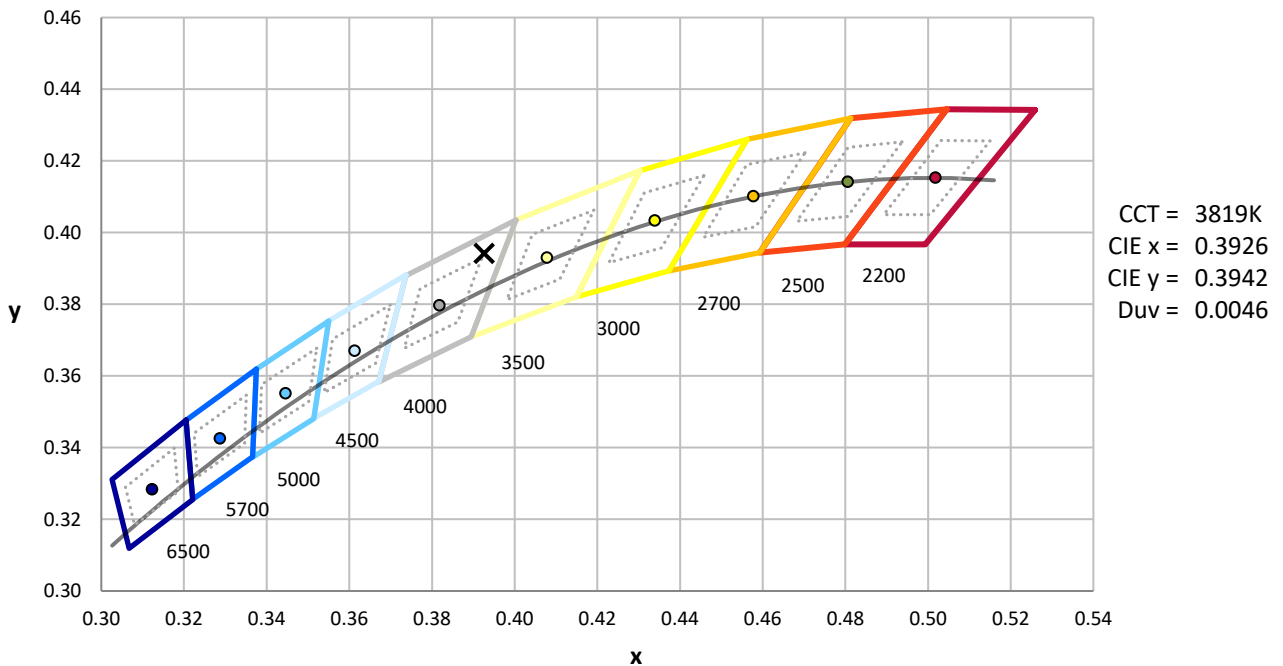
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| 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: SP1-2407-176-5

**CIE 1931 Chromaticity Diagram**



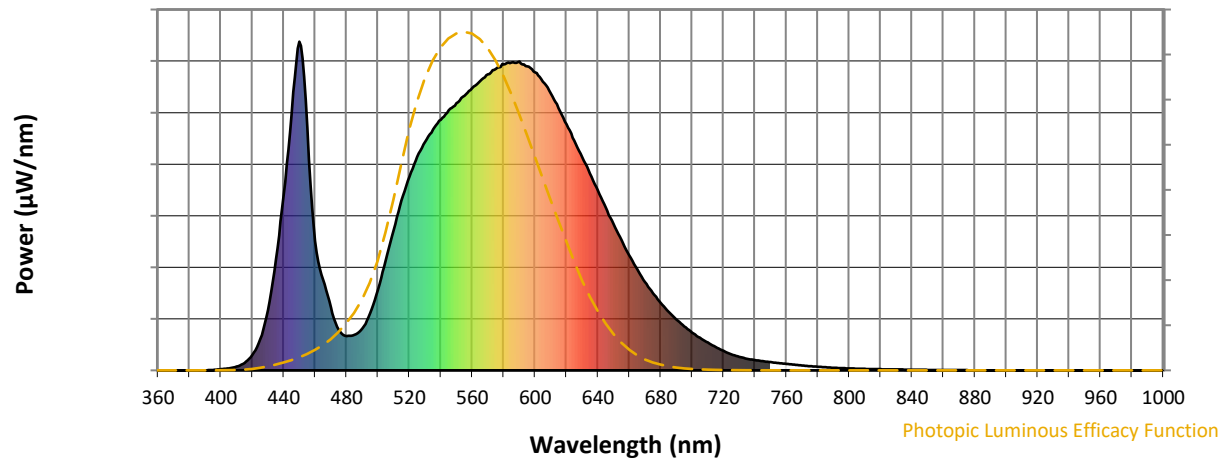
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 4000K 7-step quadrangle

REPORT NUMBER: SP1-2407-176-5

### Photopic Flux vs. Wavelength

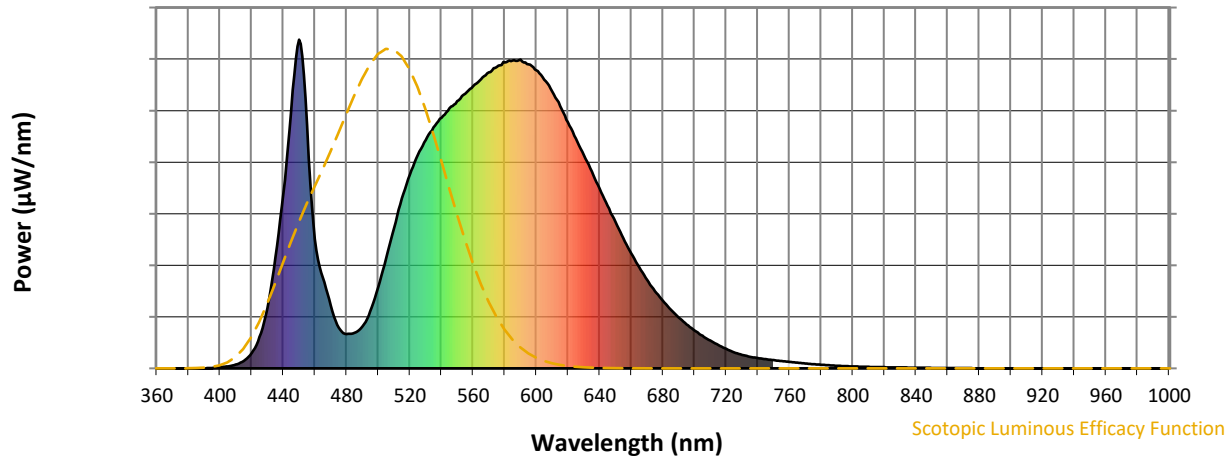


### Photopic Lumens: NR

| $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|
| 360               | 0                                      | NR                             | 490               | 127                                    | NR                             | 620               | 748                                    | NR                             | 750               | 25                                     | NR                             | 880               | 0                                      | NR                             |
| 365               | 0                                      | NR                             | 495               | 173                                    | NR                             | 625               | 699                                    | NR                             | 755               | 22                                     | NR                             | 885               | 0                                      | NR                             |
| 370               | 0                                      | NR                             | 500               | 246                                    | NR                             | 630               | 648                                    | NR                             | 760               | 20                                     | NR                             | 890               | 0                                      | NR                             |
| 375               | 0                                      | NR                             | 505               | 335                                    | NR                             | 635               | 599                                    | NR                             | 765               | 17                                     | NR                             | 895               | 0                                      | NR                             |
| 380               | 0                                      | NR                             | 510               | 427                                    | NR                             | 640               | 547                                    | NR                             | 770               | 15                                     | NR                             | 900               | 0                                      | NR                             |
| 385               | 0                                      | NR                             | 515               | 517                                    | NR                             | 645               | 495                                    | NR                             | 775               | 13                                     | NR                             | 905               | 0                                      | NR                             |
| 390               | 0                                      | NR                             | 520               | 589                                    | NR                             | 650               | 445                                    | NR                             | 780               | 11                                     | NR                             | 910               | 0                                      | NR                             |
| 395               | 1                                      | NR                             | 525               | 649                                    | NR                             | 655               | 396                                    | NR                             | 785               | 9                                      | NR                             | 915               | 0                                      | NR                             |
| 400               | 4                                      | NR                             | 530               | 695                                    | NR                             | 660               | 349                                    | NR                             | 790               | 8                                      | NR                             | 920               | 0                                      | NR                             |
| 405               | 6                                      | NR                             | 535               | 733                                    | NR                             | 665               | 308                                    | NR                             | 795               | 7                                      | NR                             | 925               | 0                                      | NR                             |
| 410               | 11                                     | NR                             | 540               | 763                                    | NR                             | 670               | 269                                    | NR                             | 800               | 6                                      | NR                             | 930               | 0                                      | NR                             |
| 415               | 23                                     | NR                             | 545               | 792                                    | NR                             | 675               | 235                                    | NR                             | 805               | 5                                      | NR                             | 935               | 0                                      | NR                             |
| 420               | 46                                     | NR                             | 550               | 813                                    | NR                             | 680               | 205                                    | NR                             | 810               | 5                                      | NR                             | 940               | 0                                      | NR                             |
| 425               | 95                                     | NR                             | 555               | 835                                    | NR                             | 685               | 178                                    | NR                             | 815               | 4                                      | NR                             | 945               | 0                                      | NR                             |
| 430               | 183                                    | NR                             | 560               | 859                                    | NR                             | 690               | 155                                    | NR                             | 820               | 3                                      | NR                             | 950               | 0                                      | NR                             |
| 435               | 338                                    | NR                             | 565               | 880                                    | NR                             | 695               | 134                                    | NR                             | 825               | 3                                      | NR                             | 955               | 0                                      | NR                             |
| 440               | 534                                    | NR                             | 570               | 900                                    | NR                             | 700               | 115                                    | NR                             | 830               | 3                                      | NR                             | 960               | 0                                      | NR                             |
| 445               | 782                                    | NR                             | 575               | 918                                    | NR                             | 705               | 99                                     | NR                             | 835               | 2                                      | NR                             | 965               | 0                                      | NR                             |
| 450               | 1000                                   | NR                             | 580               | 931                                    | NR                             | 710               | 84                                     | NR                             | 840               | 2                                      | NR                             | 970               | 0                                      | NR                             |
| 455               | 739                                    | NR                             | 585               | 937                                    | NR                             | 715               | 71                                     | NR                             | 845               | 2                                      | NR                             | 975               | 0                                      | NR                             |
| 460               | 393                                    | NR                             | 590               | 939                                    | NR                             | 720               | 59                                     | NR                             | 850               | 1                                      | NR                             | 980               | 0                                      | NR                             |
| 465               | 276                                    | NR                             | 595               | 925                                    | NR                             | 725               | 49                                     | NR                             | 855               | 1                                      | NR                             | 985               | 0                                      | NR                             |
| 470               | 190                                    | NR                             | 600               | 907                                    | NR                             | 730               | 41                                     | NR                             | 860               | 1                                      | NR                             | 990               | 0                                      | NR                             |
| 475               | 123                                    | NR                             | 605               | 878                                    | NR                             | 735               | 35                                     | NR                             | 865               | 1                                      | NR                             | 995               | 0                                      | NR                             |
| 480               | 105                                    | NR                             | 610               | 842                                    | NR                             | 740               | 31                                     | NR                             | 870               | 1                                      | NR                             | 1000              | 0                                      | NR                             |
| 485               | 108                                    | NR                             | 615               | 797                                    | NR                             | 745               | 28                                     | NR                             | 875               | 1                                      | NR                             |                   |                                        |                                |

REPORT NUMBER: SP1-2407-176-5

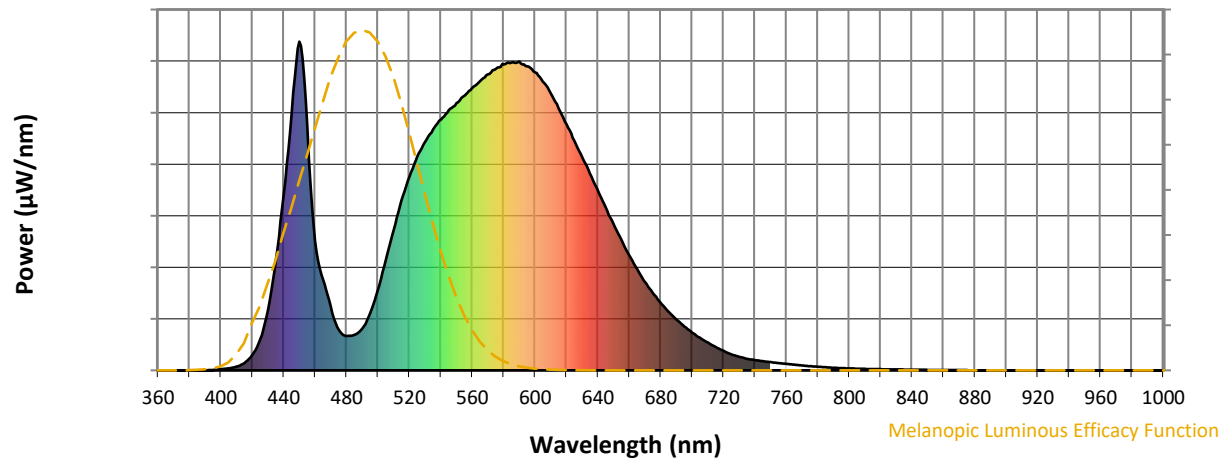
### Scotopic Flux vs. Wavelength


**Scotopic Lumens: NR**
**S/P: 1.45**

| λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 127                      | NR            | 620    | 748                      | NR            | 750    | 25                       | NR            | 880    | 0                        | NR            |
| 365    | 0                        | NR            | 495    | 173                      | NR            | 625    | 699                      | NR            | 755    | 22                       | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 246                      | NR            | 630    | 648                      | NR            | 760    | 20                       | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 335                      | NR            | 635    | 599                      | NR            | 765    | 17                       | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 427                      | NR            | 640    | 547                      | NR            | 770    | 15                       | NR            | 900    | 0                        | NR            |
| 385    | 0                        | NR            | 515    | 517                      | NR            | 645    | 495                      | NR            | 775    | 13                       | NR            | 905    | 0                        | NR            |
| 390    | 0                        | NR            | 520    | 589                      | NR            | 650    | 445                      | NR            | 780    | 11                       | NR            | 910    | 0                        | NR            |
| 395    | 1                        | NR            | 525    | 649                      | NR            | 655    | 396                      | NR            | 785    | 9                        | NR            | 915    | 0                        | NR            |
| 400    | 4                        | NR            | 530    | 695                      | NR            | 660    | 349                      | NR            | 790    | 8                        | NR            | 920    | 0                        | NR            |
| 405    | 6                        | NR            | 535    | 733                      | NR            | 665    | 308                      | NR            | 795    | 7                        | NR            | 925    | 0                        | NR            |
| 410    | 11                       | NR            | 540    | 763                      | NR            | 670    | 269                      | NR            | 800    | 6                        | NR            | 930    | 0                        | NR            |
| 415    | 23                       | NR            | 545    | 792                      | NR            | 675    | 235                      | NR            | 805    | 5                        | NR            | 935    | 0                        | NR            |
| 420    | 46                       | NR            | 550    | 813                      | NR            | 680    | 205                      | NR            | 810    | 5                        | NR            | 940    | 0                        | NR            |
| 425    | 95                       | NR            | 555    | 835                      | NR            | 685    | 178                      | NR            | 815    | 4                        | NR            | 945    | 0                        | NR            |
| 430    | 183                      | NR            | 560    | 859                      | NR            | 690    | 155                      | NR            | 820    | 3                        | NR            | 950    | 0                        | NR            |
| 435    | 338                      | NR            | 565    | 880                      | NR            | 695    | 134                      | NR            | 825    | 3                        | NR            | 955    | 0                        | NR            |
| 440    | 534                      | NR            | 570    | 900                      | NR            | 700    | 115                      | NR            | 830    | 3                        | NR            | 960    | 0                        | NR            |
| 445    | 782                      | NR            | 575    | 918                      | NR            | 705    | 99                       | NR            | 835    | 2                        | NR            | 965    | 0                        | NR            |
| 450    | 1000                     | NR            | 580    | 931                      | NR            | 710    | 84                       | NR            | 840    | 2                        | NR            | 970    | 0                        | NR            |
| 455    | 739                      | NR            | 585    | 937                      | NR            | 715    | 71                       | NR            | 845    | 2                        | NR            | 975    | 0                        | NR            |
| 460    | 393                      | NR            | 590    | 939                      | NR            | 720    | 59                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 276                      | NR            | 595    | 925                      | NR            | 725    | 49                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 190                      | NR            | 600    | 907                      | NR            | 730    | 41                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 123                      | NR            | 605    | 878                      | NR            | 735    | 35                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 105                      | NR            | 610    | 842                      | NR            | 740    | 31                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 108                      | NR            | 615    | 797                      | NR            | 745    | 28                       | NR            | 875    | 1                        | NR            |        |                          |               |

REPORT NUMBER: SP1-2407-176-5

### Melanopic Flux vs. Wavelength


**Melanopic Lumens: NR**
**M/P: 2.76**

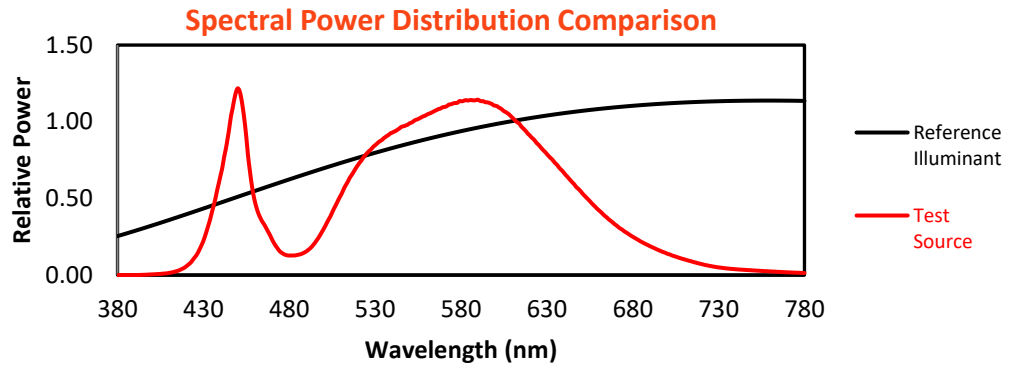
| $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|
| 360               | 0                                      | NR                             | 490               | 127                                    | NR                             | 620               | 748                                    | NR                             | 750               | 25                                     | NR                             | 880               | 0                                      | NR                             |
| 365               | 0                                      | NR                             | 495               | 173                                    | NR                             | 625               | 699                                    | NR                             | 755               | 22                                     | NR                             | 885               | 0                                      | NR                             |
| 370               | 0                                      | NR                             | 500               | 246                                    | NR                             | 630               | 648                                    | NR                             | 760               | 20                                     | NR                             | 890               | 0                                      | NR                             |
| 375               | 0                                      | NR                             | 505               | 335                                    | NR                             | 635               | 599                                    | NR                             | 765               | 17                                     | NR                             | 895               | 0                                      | NR                             |
| 380               | 0                                      | NR                             | 510               | 427                                    | NR                             | 640               | 547                                    | NR                             | 770               | 15                                     | NR                             | 900               | 0                                      | NR                             |
| 385               | 0                                      | NR                             | 515               | 517                                    | NR                             | 645               | 495                                    | NR                             | 775               | 13                                     | NR                             | 905               | 0                                      | NR                             |
| 390               | 0                                      | NR                             | 520               | 589                                    | NR                             | 650               | 445                                    | NR                             | 780               | 11                                     | NR                             | 910               | 0                                      | NR                             |
| 395               | 1                                      | NR                             | 525               | 649                                    | NR                             | 655               | 396                                    | NR                             | 785               | 9                                      | NR                             | 915               | 0                                      | NR                             |
| 400               | 4                                      | NR                             | 530               | 695                                    | NR                             | 660               | 349                                    | NR                             | 790               | 8                                      | NR                             | 920               | 0                                      | NR                             |
| 405               | 6                                      | NR                             | 535               | 733                                    | NR                             | 665               | 308                                    | NR                             | 795               | 7                                      | NR                             | 925               | 0                                      | NR                             |
| 410               | 11                                     | NR                             | 540               | 763                                    | NR                             | 670               | 269                                    | NR                             | 800               | 6                                      | NR                             | 930               | 0                                      | NR                             |
| 415               | 23                                     | NR                             | 545               | 792                                    | NR                             | 675               | 235                                    | NR                             | 805               | 5                                      | NR                             | 935               | 0                                      | NR                             |
| 420               | 46                                     | NR                             | 550               | 813                                    | NR                             | 680               | 205                                    | NR                             | 810               | 5                                      | NR                             | 940               | 0                                      | NR                             |
| 425               | 95                                     | NR                             | 555               | 835                                    | NR                             | 685               | 178                                    | NR                             | 815               | 4                                      | NR                             | 945               | 0                                      | NR                             |
| 430               | 183                                    | NR                             | 560               | 859                                    | NR                             | 690               | 155                                    | NR                             | 820               | 3                                      | NR                             | 950               | 0                                      | NR                             |
| 435               | 338                                    | NR                             | 565               | 880                                    | NR                             | 695               | 134                                    | NR                             | 825               | 3                                      | NR                             | 955               | 0                                      | NR                             |
| 440               | 534                                    | NR                             | 570               | 900                                    | NR                             | 700               | 115                                    | NR                             | 830               | 3                                      | NR                             | 960               | 0                                      | NR                             |
| 445               | 782                                    | NR                             | 575               | 918                                    | NR                             | 705               | 99                                     | NR                             | 835               | 2                                      | NR                             | 965               | 0                                      | NR                             |
| 450               | 1000                                   | NR                             | 580               | 931                                    | NR                             | 710               | 84                                     | NR                             | 840               | 2                                      | NR                             | 970               | 0                                      | NR                             |
| 455               | 739                                    | NR                             | 585               | 937                                    | NR                             | 715               | 71                                     | NR                             | 845               | 2                                      | NR                             | 975               | 0                                      | NR                             |
| 460               | 393                                    | NR                             | 590               | 939                                    | NR                             | 720               | 59                                     | NR                             | 850               | 1                                      | NR                             | 980               | 0                                      | NR                             |
| 465               | 276                                    | NR                             | 595               | 925                                    | NR                             | 725               | 49                                     | NR                             | 855               | 1                                      | NR                             | 985               | 0                                      | NR                             |
| 470               | 190                                    | NR                             | 600               | 907                                    | NR                             | 730               | 41                                     | NR                             | 860               | 1                                      | NR                             | 990               | 0                                      | NR                             |
| 475               | 123                                    | NR                             | 605               | 878                                    | NR                             | 735               | 35                                     | NR                             | 865               | 1                                      | NR                             | 995               | 0                                      | NR                             |
| 480               | 105                                    | NR                             | 610               | 842                                    | NR                             | 740               | 31                                     | NR                             | 870               | 1                                      | NR                             | 1000              | 0                                      | NR                             |
| 485               | 108                                    | NR                             | 615               | 797                                    | NR                             | 745               | 28                                     | NR                             | 875               | 1                                      | NR                             |                   |                                        |                                |

REPORT NUMBER: SP1-2407-176-5

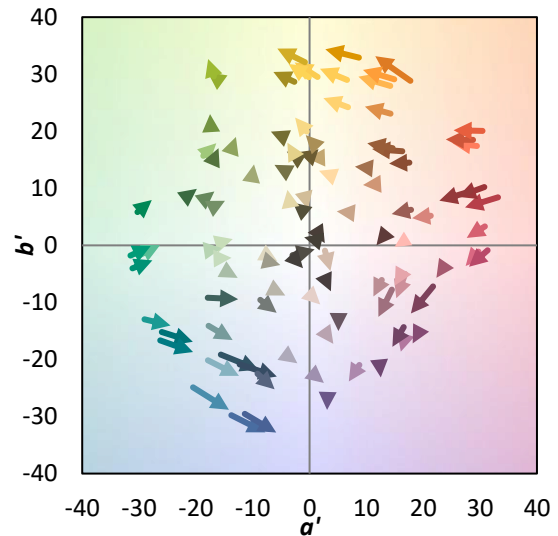
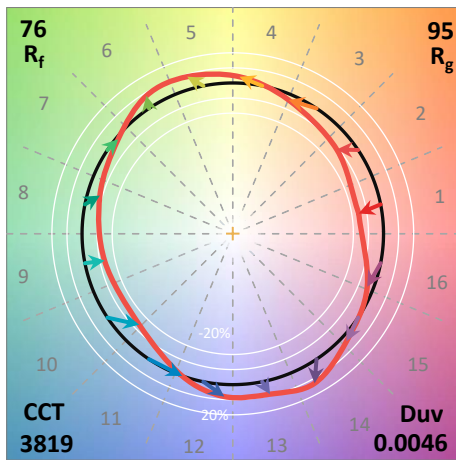
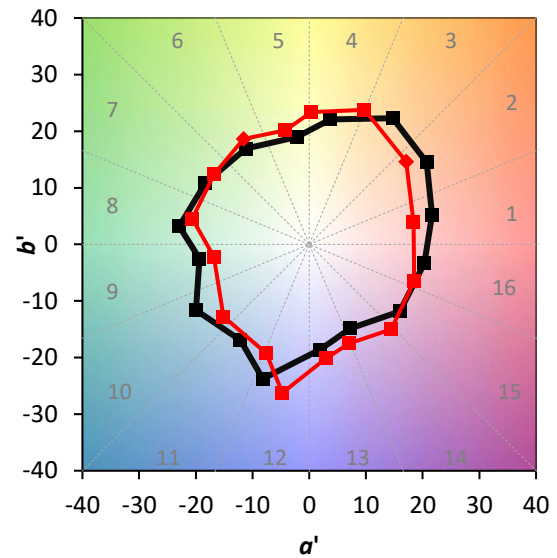
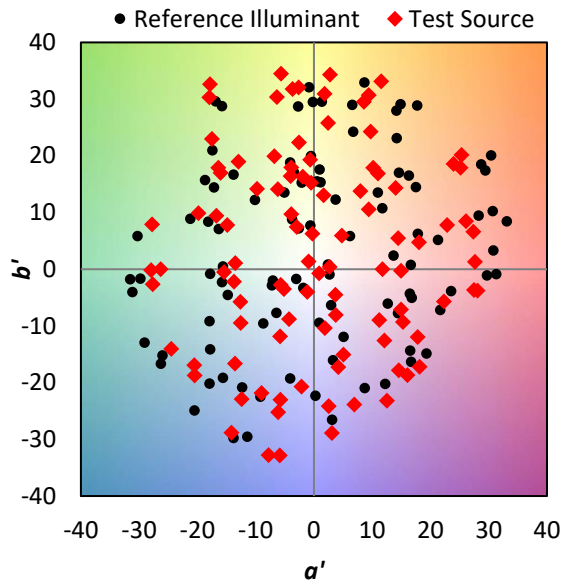
TM-30-18

### Summary

$R_f = 75.6$   
 $R_g = 94.8$   
 $CIE R_a = 72.9$   
 $R_g = -21.5$

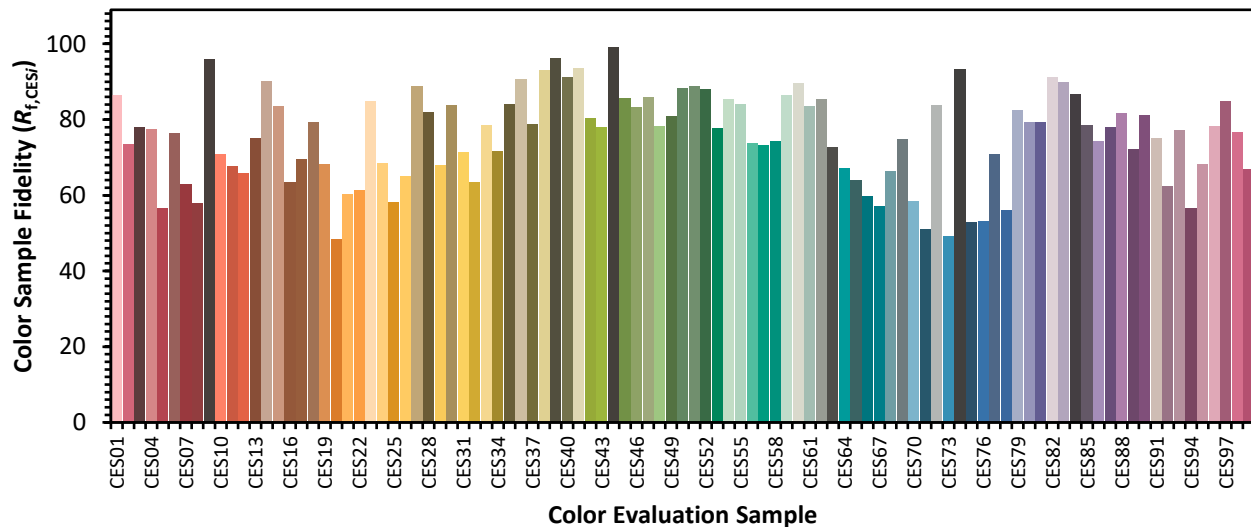


### Color Vector Graphics

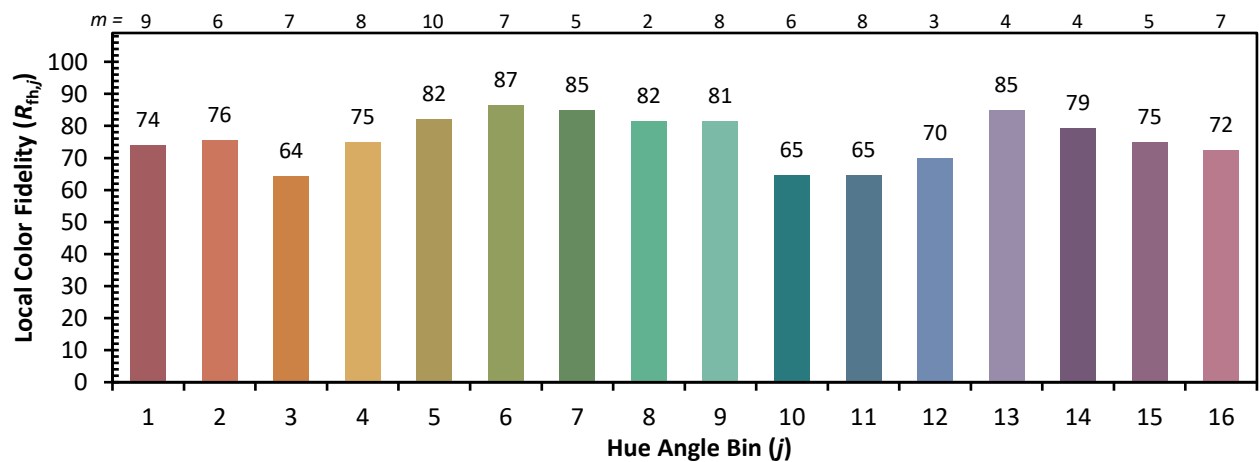
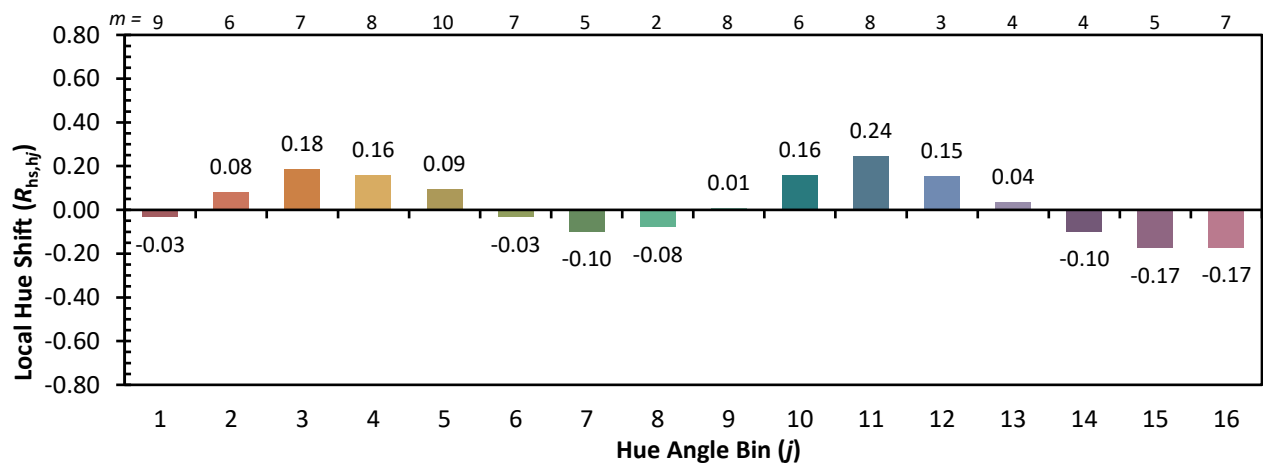
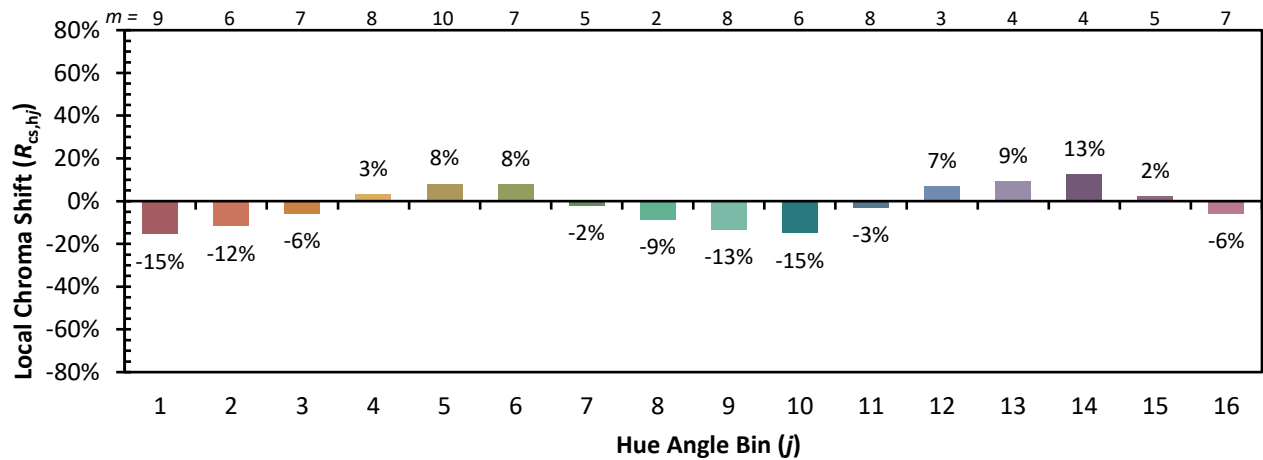


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

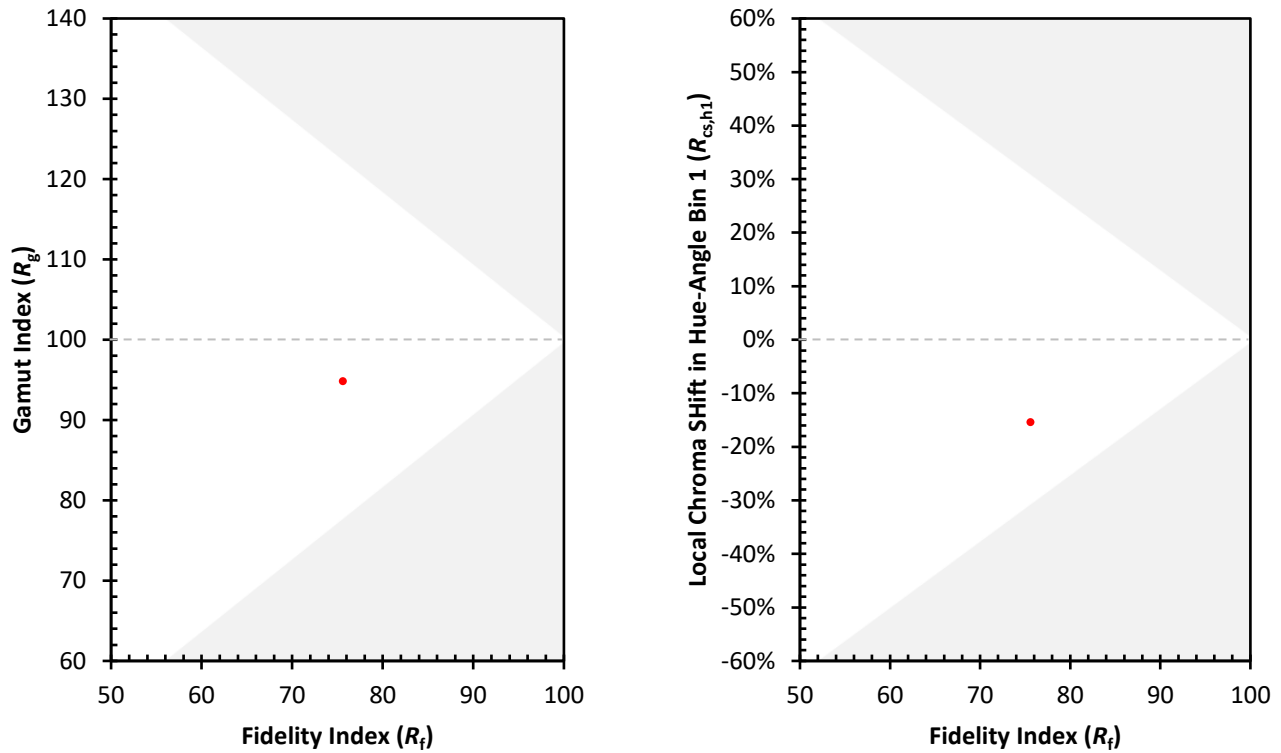
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 65 | CES51 = 89 | CES76 = 53 |
| CES02 = 61 | CES27 = 89 | CES52 = 88 | CES77 = 71 |
| CES03 = 30 | CES28 = 82 | CES53 = 78 | CES78 = 56 |
| CES04 = 70 | CES29 = 68 | CES54 = 85 | CES79 = 83 |
| CES05 = 48 | CES30 = 84 | CES55 = 84 | CES80 = 79 |
| CES06 = 50 | CES31 = 71 | CES56 = 74 | CES81 = 79 |
| CES07 = 40 | CES32 = 63 | CES57 = 73 | CES82 = 91 |
| CES08 = 39 | CES33 = 79 | CES58 = 74 | CES83 = 90 |
| CES09 = 29 | CES34 = 72 | CES59 = 86 | CES84 = 87 |
| CES10 = 74 | CES35 = 84 | CES60 = 90 | CES85 = 78 |
| CES11 = 57 | CES36 = 91 | CES61 = 84 | CES86 = 74 |
| CES12 = 63 | CES37 = 79 | CES62 = 85 | CES87 = 78 |
| CES13 = 42 | CES38 = 93 | CES63 = 73 | CES88 = 82 |
| CES14 = 74 | CES39 = 96 | CES64 = 67 | CES89 = 72 |
| CES15 = 71 | CES40 = 91 | CES65 = 64 | CES90 = 81 |
| CES16 = 47 | CES41 = 93 | CES66 = 60 | CES91 = 75 |
| CES17 = 49 | CES42 = 80 | CES67 = 57 | CES92 = 62 |
| CES18 = 56 | CES43 = 78 | CES68 = 66 | CES93 = 77 |
| CES19 = 72 | CES44 = 99 | CES69 = 75 | CES94 = 57 |
| CES20 = 65 | CES45 = 86 | CES70 = 58 | CES95 = 68 |
| CES21 = 86 | CES46 = 83 | CES71 = 51 | CES96 = 78 |
| CES22 = 78 | CES47 = 86 | CES72 = 84 | CES97 = 85 |
| CES23 = 92 | CES48 = 78 | CES73 = 49 | CES98 = 77 |
| CES24 = 91 | CES49 = 81 | CES74 = 93 | CES99 = 67 |
| CES25 = 72 | CES50 = 88 | CES75 = 53 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)