

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: P821171

Luminaire Tested: **TT-D1-735-24VDC-T4-PM-HSS**

Issue Date: 12/2/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P821171  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2010-017-4)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/2/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: MCGRAW-EDISON  
Catalog Number: TT-D1-735-24VDC-T4-PM-HSS  
Description: TOPTIER LED SITE LUMINAIRE  
3500K, 70 CRI LEDS AND DRIVE LANE DISTRIBUTION WITH HOUSE SIDE SHIELD  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

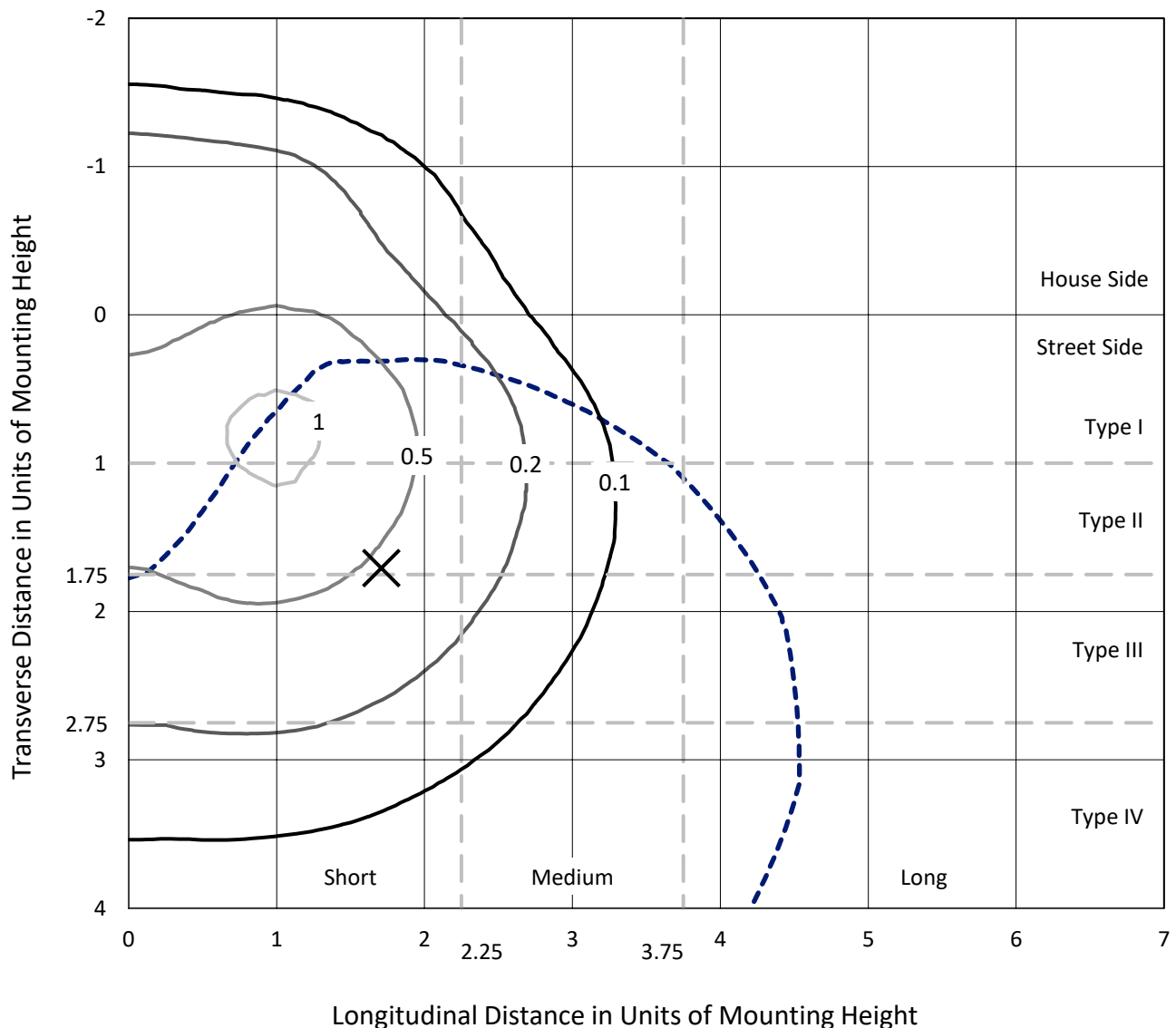
Lumens per Lamp: N/A  
Luminaire Lumens: 2769 lumens  
Efficiency: N/A  
Efficacy: 98.9 lumens/watt  
Luminous Opening: Circular (Dia: 1.12' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B1 - U1 - G2

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

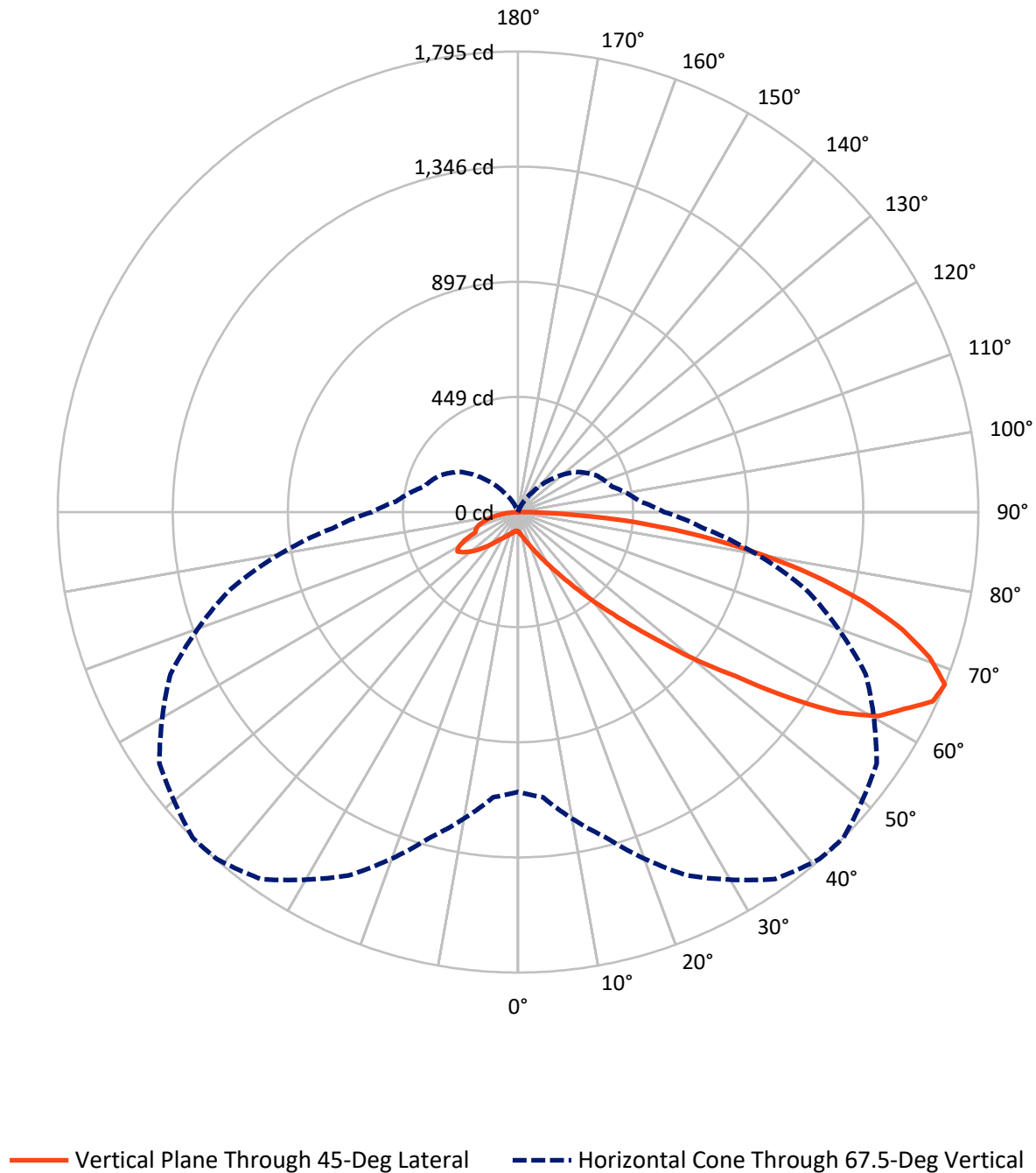
✕ Max cd  
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 1.1 fc  
 Type IV - Short - N/A

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## Luminous Intensity Polar Plot



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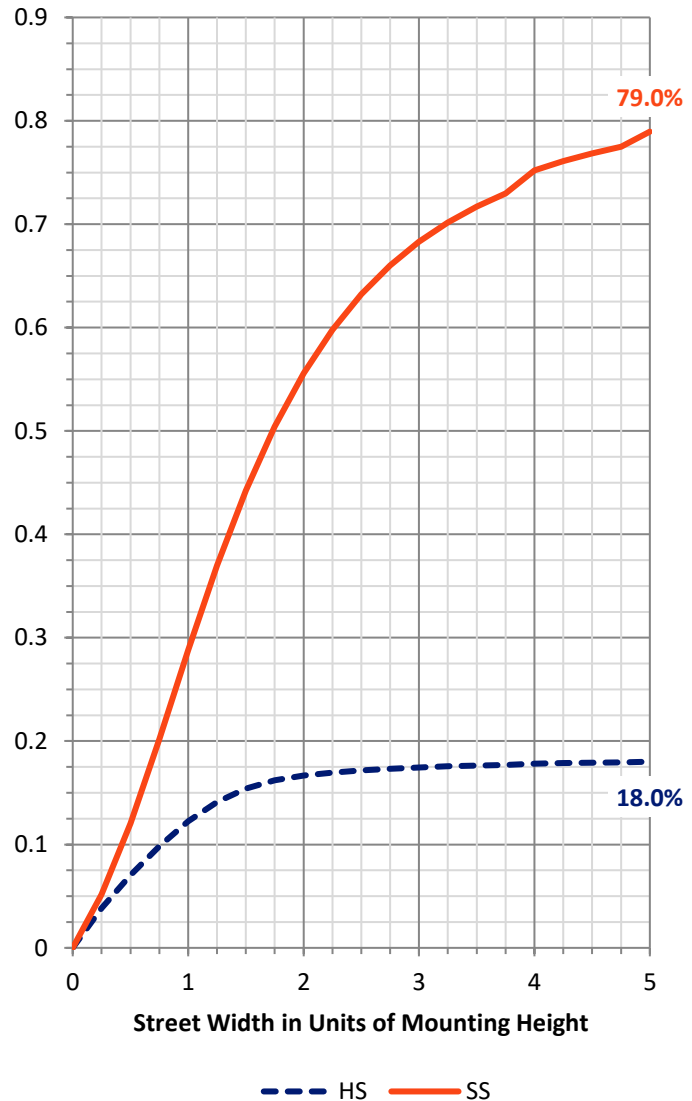
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 503.1    | 0.6    | 503.7  |
|                    | % Fixture | 18.2     | 0.0    | 18.2   |
| <b>Street Side</b> | Lumens    | 2259.2   | 6.2    | 2265.3 |
|                    | % Fixture | 81.6     | 0.2    | 81.8   |
| <b>Total</b>       | Lumens    | 2762.2   | 6.8    | 2769.0 |
|                    | % Fixture | 99.8     | 0.2    | 100.0  |

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 7.8    | 0.3       |
| 10°-20°   | 29.1   | 1.1       |
| 20°-30°   | 67.2   | 2.4       |
| 30°-40°   | 143.3  | 5.2       |
| 40°-50°   | 299.9  | 10.8      |
| 50°-60°   | 568.8  | 20.5      |
| 60°-70°   | 774.2  | 28.0      |
| 70°-80°   | 665.6  | 24.0      |
| 80°-90°   | 206.4  | 7.5       |
| 90°-100°  | 4.4    | 0.2       |
| 100°-110° | 1.3    | 0.0       |
| 110°-120° | 0.4    | 0.0       |
| 120°-130° | 0.3    | 0.0       |
| 130°-140° | 0.2    | 0.0       |
| 140°-150° | 0.2    | 0.0       |
| 150°-160° | 0.1    | 0.0       |
| 160°-170° | 0.1    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-90°    | 2762.2 | 99.8      |
| 0°-180°   | 2769.0 | 100.0     |

**Coefficient of Utilization**



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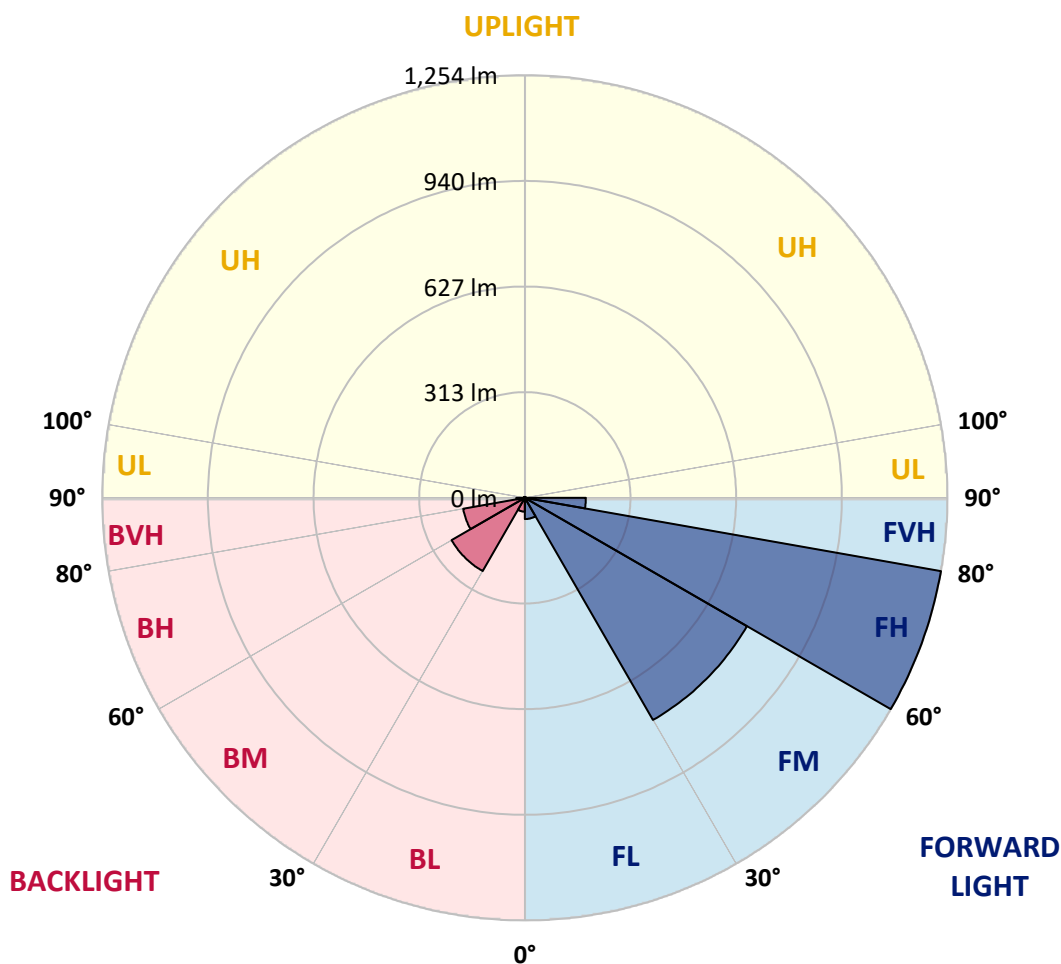
CATALOG NUMBER: TT-D1-735-24VDC-T4-PM-HSS

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |       |         |
|------|-------------|--------|-----------|-------------------------|-------|---------|
|      |             |        |           | B                       | U     | G       |
| FL   | (0°-30°)    | 63.1   | 2.3       |                         |       |         |
| FM   | (30°-60°)   | 761.0  | 27.5      |                         |       |         |
| FH   | (60°-80°)   | 1253.9 | 45.3      |                         |       | G1/1800 |
| FVH  | (80°-90°)   | 181.1  | 6.5       |                         |       | G2/225  |
| BL   | (0°-30°)    | 41.0   | 1.5       | B0/110                  |       |         |
| BM   | (30°-60°)   | 251.0  | 9.1       | B1/1000                 |       |         |
| BH   | (60°-80°)   | 185.8  | 6.7       | B1/500                  |       | G1/500  |
| BVH  | (80°-90°)   | 25.3   | 0.9       |                         |       | G1/100  |
| UL   | (90°-100°)  | 4.4    | 0.2       |                         | U1/10 |         |
| UH   | (100°-180°) | 2.4    | 0.1       |                         | U1/10 |         |

**BUG Rating: B1-U1-G2**

Type IV Short





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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 5°     | 15°    | 25°    | 35°    | 41°    | 45°    | 55°    | 65°    | 75°    | 85°   |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|
| 0°     | 75.8   | 75.8   | 75.8   | 75.8   | 75.8   | 75.8   | 75.8   | 75.8   | 75.8   | 75.8   | 75.8  |
| 2.5°   | 82.2   | 81.6   | 81.6   | 81.1   | 81.1   | 79.9   | 79.9   | 79.3   | 78.7   | 78.1   | 76.9  |
| 5°     | 88.1   | 87.5   | 87.5   | 86.9   | 86.3   | 85.2   | 84.6   | 83.4   | 82.2   | 81.1   | 79.9  |
| 7.5°   | 95.1   | 94.6   | 94.6   | 94.0   | 92.8   | 91.0   | 90.4   | 88.7   | 86.9   | 85.2   | 83.4  |
| 10°    | 104.0  | 103.4  | 103.4  | 102.2  | 101.0  | 99.3   | 98.1   | 95.7   | 94.0   | 91.0   | 88.1  |
| 12.5°  | 113.4  | 112.8  | 112.8  | 111.6  | 109.2  | 108.1  | 106.9  | 104.0  | 101.0  | 97.5   | 94.0  |
| 15°    | 123.9  | 123.9  | 123.9  | 123.3  | 121.0  | 118.6  | 117.5  | 113.9  | 110.4  | 105.1  | 100.4 |
| 17.5°  | 137.4  | 136.8  | 136.8  | 135.7  | 132.7  | 131.6  | 129.8  | 125.7  | 120.4  | 114.5  | 108.7 |
| 20°    | 153.9  | 153.3  | 152.1  | 151.5  | 148.6  | 147.4  | 145.1  | 140.4  | 133.3  | 125.7  | 117.5 |
| 22.5°  | 170.3  | 170.3  | 169.7  | 170.3  | 168.0  | 166.8  | 163.9  | 157.4  | 149.2  | 138.0  | 128.0 |
| 25°    | 189.1  | 189.7  | 190.9  | 192.6  | 189.7  | 188.5  | 186.2  | 178.0  | 168.0  | 153.9  | 139.8 |
| 27.5°  | 212.6  | 212.6  | 215.6  | 218.5  | 216.1  | 215.6  | 212.0  | 203.2  | 189.1  | 172.1  | 155.6 |
| 30°    | 237.9  | 238.5  | 243.2  | 248.4  | 247.3  | 247.3  | 244.3  | 234.3  | 217.3  | 197.3  | 174.4 |
| 32.5°  | 267.2  | 269.6  | 274.3  | 280.2  | 284.3  | 284.3  | 283.1  | 272.5  | 252.6  | 225.5  | 197.3 |
| 35°    | 306.0  | 301.9  | 310.7  | 319.5  | 328.3  | 330.1  | 330.7  | 320.7  | 297.8  | 263.7  | 225.5 |
| 37.5°  | 339.5  | 338.9  | 352.4  | 367.7  | 382.4  | 388.2  | 390.0  | 380.6  | 351.2  | 306.6  | 256.1 |
| 40°    | 378.2  | 381.8  | 400.0  | 422.9  | 447.5  | 457.5  | 462.2  | 451.7  | 415.2  | 357.7  | 291.3 |
| 42.5°  | 418.8  | 429.3  | 452.2  | 486.9  | 524.5  | 539.2  | 544.5  | 534.5  | 491.6  | 421.7  | 336.0 |
| 45°    | 466.3  | 481.0  | 511.6  | 560.9  | 610.2  | 632.0  | 643.7  | 640.2  | 596.1  | 509.2  | 393.5 |
| 47.5°  | 525.1  | 535.6  | 577.3  | 643.7  | 713.6  | 749.4  | 765.9  | 775.9  | 713.0  | 599.7  | 444.0 |
| 50°    | 591.4  | 593.2  | 650.8  | 734.8  | 836.9  | 884.5  | 913.3  | 908.6  | 834.0  | 703.6  | 508.0 |
| 52.5°  | 658.4  | 656.6  | 731.8  | 845.8  | 979.7  | 1041.9 | 1061.3 | 1080.7 | 1007.3 | 862.2  | 610.8 |
| 55°    | 734.8  | 731.2  | 825.8  | 970.3  | 1136.5 | 1218.7 | 1273.3 | 1300.4 | 1184.6 | 966.7  | 655.5 |
| 57.5°  | 798.2  | 809.3  | 928.0  | 1101.8 | 1333.8 | 1437.2 | 1473.0 | 1458.3 | 1282.1 | 1019.6 | 677.2 |
| 60°    | 878.6  | 895.1  | 1030.2 | 1273.9 | 1504.7 | 1581.7 | 1614.6 | 1547.6 | 1344.4 | 1059.5 | 692.5 |
| 62.5°  | 954.4  | 975.6  | 1142.4 | 1413.7 | 1611.6 | 1682.1 | 1690.3 | 1617.5 | 1431.9 | 1138.3 | 737.1 |
| 65°    | 1025.5 | 1049.6 | 1254.0 | 1496.5 | 1705.0 | 1763.8 | 1777.9 | 1720.3 | 1524.7 | 1184.6 | 754.7 |
| 67.5°  | 1090.7 | 1115.9 | 1311.5 | 1562.9 | 1746.7 | 1792.0 | 1794.9 | 1707.4 | 1495.9 | 1160.6 | 726.5 |
| 70°    | 1140.6 | 1151.8 | 1339.1 | 1561.1 | 1697.4 | 1715.0 | 1703.3 | 1615.2 | 1428.4 | 1111.2 | 686.0 |
| 72.5°  | 1150.6 | 1158.8 | 1300.9 | 1474.2 | 1560.5 | 1577.0 | 1567.6 | 1490.1 | 1322.1 | 1023.1 | 620.2 |
| 75°    | 1100.1 | 1101.8 | 1198.2 | 1318.0 | 1380.8 | 1400.8 | 1388.5 | 1316.8 | 1162.3 | 898.6  | 533.9 |
| 77.5°  | 967.9  | 971.4  | 1029.6 | 1110.1 | 1162.9 | 1180.0 | 1170.6 | 1104.8 | 973.8  | 754.7  | 441.7 |
| 80°    | 767.1  | 774.1  | 815.8  | 871.6  | 919.8  | 937.4  | 926.2  | 873.4  | 766.5  | 593.2  | 344.8 |
| 82.5°  | 522.7  | 531.5  | 569.7  | 616.1  | 658.4  | 675.4  | 666.0  | 632.6  | 552.7  | 427.6  | 246.1 |
| 85°    | 264.3  | 273.7  | 313.0  | 356.5  | 393.5  | 411.7  | 408.8  | 394.7  | 340.1  | 263.7  | 148.6 |
| 87.5°  | 41.7   | 45.8   | 62.3   | 82.8   | 105.7  | 122.8  | 112.2  | 111.0  | 88.1   | 70.5   | 35.8  |
| 90°    | 17.0   | 17.0   | 16.4   | 15.9   | 14.1   | 12.9   | 12.3   | 10.0   | 7.6    | 4.7    | 1.8   |
| 92.5°  | 15.3   | 15.3   | 14.7   | 13.5   | 12.3   | 11.7   | 10.6   | 8.8    | 6.5    | 4.1    | 1.8   |
| 95°    | 12.3   | 12.3   | 11.7   | 11.2   | 10.0   | 9.4    | 8.2    | 7.0    | 5.3    | 3.5    | 1.8   |
| 97.5°  | 9.4    | 9.4    | 8.8    | 8.2    | 7.6    | 6.5    | 6.5    | 5.3    | 3.5    | 2.3    | 1.2   |
| 100°   | 7.0    | 7.0    | 6.5    | 5.9    | 5.3    | 4.7    | 4.7    | 3.5    | 2.3    | 1.8    | 1.2   |
| 102.5° | 4.7    | 4.7    | 4.7    | 4.1    | 3.5    | 3.5    | 2.9    | 2.3    | 1.8    | 1.2    | 1.2   |
| 105°   | 2.9    | 2.9    | 2.9    | 2.9    | 2.3    | 1.8    | 1.8    | 1.2    | 1.2    | 1.2    | 1.2   |
| 107.5° | 1.8    | 1.8    | 1.8    | 1.8    | 1.2    | 1.2    | 1.2    | 1.2    | 1.2    | 1.2    | 1.2   |
| 110°   | 1.2    | 1.2    | 1.2    | 0.6    | 0.6    | 0.6    | 0.6    | 0.6    | 0.6    | 1.2    | 0.6   |



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**CANDELA DISTRIBUTION (continued):**

|        | 0°  | 5°  | 15° | 25° | 35° | 41° | 45° | 55° | 65° | 75° | 85° |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 112.5° | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 115°   | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 117.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 120°   | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 122.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 125°   | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 127.5° | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 130°   | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 132.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 135°   | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 137.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 140°   | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 |
| 142.5° | 0.6 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 145°   | 0.6 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 147.5° | 0.6 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 150°   | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 152.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 |
| 155°   | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 157.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 160°   | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 |
| 162.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 165°   | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 167.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 170°   | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 172.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 175°   | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 177.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 180°   | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

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**CANDELA DISTRIBUTION (continued):**

|        | 90°   | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°     | 75.8  | 75.8  | 75.8  | 75.8  | 75.8  | 75.8  | 75.8  | 75.8  | 75.8  | 75.8  | 75.8  |
| 2.5°   | 76.9  | 76.4  | 75.2  | 74.6  | 73.4  | 73.4  | 72.8  | 72.2  | 72.2  | 72.2  | 72.2  |
| 5°     | 78.7  | 78.1  | 76.9  | 75.8  | 74.6  | 73.4  | 72.8  | 72.2  | 72.2  | 72.2  | 71.7  |
| 7.5°   | 82.2  | 81.1  | 79.3  | 77.5  | 75.8  | 74.6  | 74.0  | 73.4  | 72.8  | 72.8  | 72.8  |
| 10°    | 86.3  | 85.2  | 82.2  | 80.5  | 78.1  | 76.4  | 75.8  | 75.2  | 74.6  | 74.6  | 74.6  |
| 12.5°  | 91.6  | 89.9  | 86.3  | 83.4  | 81.1  | 79.3  | 78.1  | 77.5  | 77.5  | 76.9  | 77.5  |
| 15°    | 98.1  | 95.7  | 91.0  | 87.5  | 84.6  | 82.8  | 81.6  | 81.1  | 81.1  | 81.1  | 80.5  |
| 17.5°  | 105.1 | 102.2 | 96.3  | 92.2  | 88.7  | 86.9  | 85.8  | 85.2  | 85.2  | 85.2  | 85.2  |
| 20°    | 113.4 | 109.2 | 102.8 | 97.5  | 94.0  | 91.6  | 90.4  | 90.4  | 89.9  | 90.4  | 90.4  |
| 22.5°  | 122.2 | 117.5 | 109.2 | 103.4 | 98.7  | 96.3  | 95.1  | 95.1  | 95.1  | 95.7  | 96.3  |
| 25°    | 132.7 | 126.9 | 116.9 | 109.2 | 104.0 | 101.6 | 100.4 | 101.0 | 101.0 | 101.6 | 101.6 |
| 27.5°  | 146.8 | 138.0 | 125.7 | 116.3 | 110.4 | 107.5 | 106.3 | 106.9 | 107.5 | 107.5 | 107.5 |
| 30°    | 162.7 | 152.1 | 135.1 | 125.1 | 118.1 | 114.5 | 113.4 | 113.9 | 114.5 | 115.7 | 115.1 |
| 32.5°  | 182.1 | 169.2 | 149.2 | 135.1 | 127.5 | 123.3 | 122.2 | 121.6 | 122.8 | 123.9 | 123.9 |
| 35°    | 205.6 | 189.1 | 165.6 | 149.2 | 138.0 | 132.7 | 131.6 | 131.0 | 131.6 | 132.7 | 133.9 |
| 37.5°  | 230.8 | 210.9 | 182.1 | 165.0 | 152.7 | 146.8 | 143.9 | 141.5 | 142.1 | 142.7 | 144.5 |
| 40°    | 259.6 | 234.9 | 200.9 | 180.3 | 169.2 | 162.1 | 158.0 | 154.5 | 155.6 | 155.6 | 156.2 |
| 42.5°  | 296.0 | 264.9 | 224.4 | 198.5 | 186.8 | 179.1 | 172.7 | 168.6 | 166.2 | 166.8 | 164.5 |
| 45°    | 343.6 | 304.8 | 253.7 | 224.4 | 207.9 | 196.2 | 188.5 | 180.3 | 174.4 | 175.6 | 172.1 |
| 47.5°  | 382.9 | 336.5 | 281.3 | 249.0 | 231.4 | 216.7 | 200.9 | 189.1 | 180.9 | 179.7 | 177.4 |
| 50°    | 431.1 | 375.3 | 313.0 | 276.0 | 257.3 | 234.9 | 216.1 | 196.2 | 182.7 | 179.1 | 179.7 |
| 52.5°  | 512.2 | 443.4 | 358.3 | 312.5 | 279.6 | 253.1 | 224.4 | 196.8 | 178.5 | 173.3 | 175.0 |
| 55°    | 541.5 | 466.3 | 381.8 | 342.4 | 310.1 | 269.0 | 227.9 | 190.3 | 166.8 | 162.1 | 162.7 |
| 57.5°  | 548.0 | 466.3 | 383.5 | 351.8 | 324.8 | 281.9 | 226.1 | 175.6 | 144.5 | 140.4 | 139.8 |
| 60°    | 551.5 | 463.4 | 377.1 | 344.8 | 315.4 | 269.6 | 203.2 | 141.5 | 111.0 | 108.1 | 106.3 |
| 62.5°  | 584.4 | 488.1 | 383.5 | 339.5 | 297.8 | 236.7 | 154.5 | 90.4  | 61.7  | 61.1  | 59.9  |
| 65°    | 594.4 | 496.9 | 391.8 | 343.0 | 278.4 | 183.8 | 91.6  | 30.5  | 6.5   | 7.0   | 5.9   |
| 67.5°  | 569.7 | 476.9 | 380.0 | 337.7 | 272.5 | 179.1 | 88.1  | 25.8  | 0.0   | 0.0   | 0.0   |
| 70°    | 535.6 | 448.1 | 359.4 | 319.5 | 260.2 | 172.1 | 86.3  | 25.8  | 0.0   | 0.0   | 0.0   |
| 72.5°  | 481.6 | 407.0 | 326.6 | 294.8 | 239.0 | 158.0 | 80.5  | 24.7  | 0.0   | 0.0   | 0.0   |
| 75°    | 418.2 | 354.2 | 286.0 | 261.4 | 212.0 | 138.6 | 72.2  | 22.3  | 0.0   | 0.0   | 0.0   |
| 77.5°  | 350.1 | 295.4 | 239.0 | 220.2 | 179.1 | 118.1 | 61.1  | 18.8  | 0.0   | 0.0   | 0.0   |
| 80°    | 274.9 | 233.8 | 188.5 | 175.6 | 141.5 | 94.0  | 48.7  | 14.7  | 0.0   | 0.0   | 0.0   |
| 82.5°  | 197.9 | 169.7 | 139.2 | 128.6 | 104.0 | 68.1  | 35.2  | 10.0  | 0.0   | 0.0   | 0.0   |
| 85°    | 122.2 | 106.3 | 89.9  | 83.4  | 65.8  | 42.3  | 21.1  | 5.3   | 0.0   | 0.0   | 0.0   |
| 87.5°  | 36.4  | 35.2  | 31.7  | 31.1  | 22.3  | 12.9  | 4.7   | 0.6   | 0.0   | 0.0   | 0.0   |
| 90°    | 0.6   | 0.6   | 0.6   | 0.6   | 0.6   | 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   | 0.0   |
| 95°    | 0.6   | 0.6   | 0.6   | 0.6   | 0.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 97.5°  | 0.6   | 0.6   | 0.6   | 0.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 100°   | 0.6   | 0.6   | 0.6   | 0.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 102.5° | 0.6   | 0.6   | 0.6   | 0.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 105°   | 0.6   | 0.6   | 0.6   | 0.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 107.5° | 0.6   | 0.6   | 0.6   | 0.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 110°   | 0.6   | 0.6   | 0.6   | 0.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |



REPORT NUMBER: P821171

CATALOG NUMBER: TT-D1-735-24VDC-T4-PM-HSS

**CANDELA DISTRIBUTION (continued):**

|        | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|--------|-----|-----|------|------|------|------|------|------|------|------|------|
| 112.5° | 0.6 | 0.6 | 0.6  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 115°   | 0.6 | 0.6 | 0.6  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 117.5° | 0.6 | 0.6 | 0.6  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 120°   | 0.6 | 0.6 | 0.6  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 122.5° | 0.6 | 0.6 | 0.6  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 125°   | 0.6 | 0.6 | 0.6  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 127.5° | 0.6 | 0.6 | 0.6  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 130°   | 0.6 | 0.6 | 0.6  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 132.5° | 0.6 | 0.6 | 0.6  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 135°   | 0.6 | 0.6 | 0.6  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 137.5° | 0.6 | 0.6 | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 140°   | 0.6 | 0.6 | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 142.5° | 0.6 | 0.6 | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 145°   | 0.6 | 0.6 | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 147.5° | 0.6 | 0.6 | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 150°   | 0.6 | 0.6 | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 152.5° | 0.6 | 0.6 | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 155°   | 0.6 | 0.6 | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 157.5° | 0.6 | 0.6 | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 160°   | 0.6 | 0.6 | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 162.5° | 0.6 | 0.6 | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 165°   | 0.6 | 0.6 | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 167.5° | 0.6 | 0.6 | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 170°   | 0.6 | 0.6 | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 172.5° | 0.6 | 0.6 | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 175°   | 0.6 | 0.6 | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 177.5° | 0.6 | 0.6 | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 180°   | 0.0 | 0.0 | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |

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

Report Prepared for

Cooper Lighting Solutions

Streetworks

Report Number: SP1-2407-176-4

Test Date: 09/24/2024

Luminaire Tested: MEM2-HTN-VA-30-735-U-WQ

Data in this report applies to families of products including MEM2-HTN-VA-30-735-U-WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-176-4  
 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-30-735-U-WQ**  
 Description: EPIC MODERN VISUAL COMFORT 30W WAVESTREAM WIDE

### Spectral Parameters

CCT (K): 3348  
 CIE  $u'$ : 0.2384  
 CIE  $v'$ : 0.5184  
 Duv: 0.0030  
 CIE x: 0.4177  
 CIE y: 0.4036  
 CIE z: 0.1787  
 Peak Wavelength (nm): 593  
 Dominant Wavelength (nm): 580  
 Purity: 46.5223  
 R<sub>f</sub>: 75.8  
 R<sub>g</sub>: 95.8

CRI (Ra): 73.4  
 R1: 70.8  
 R2: 79.9  
 R3: 87.6  
 R4: 72.6  
 R5: 69.3  
 R6: 71.3  
 R7: 82.1  
 R8: 53.3  
 R9: -19.2  
 R10: 52.5  
 R11: 68.0  
 R12: 42.6  
 R13: 72.0  
 R14: 92.6  
 R15: 63.8



### Test Conditions

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

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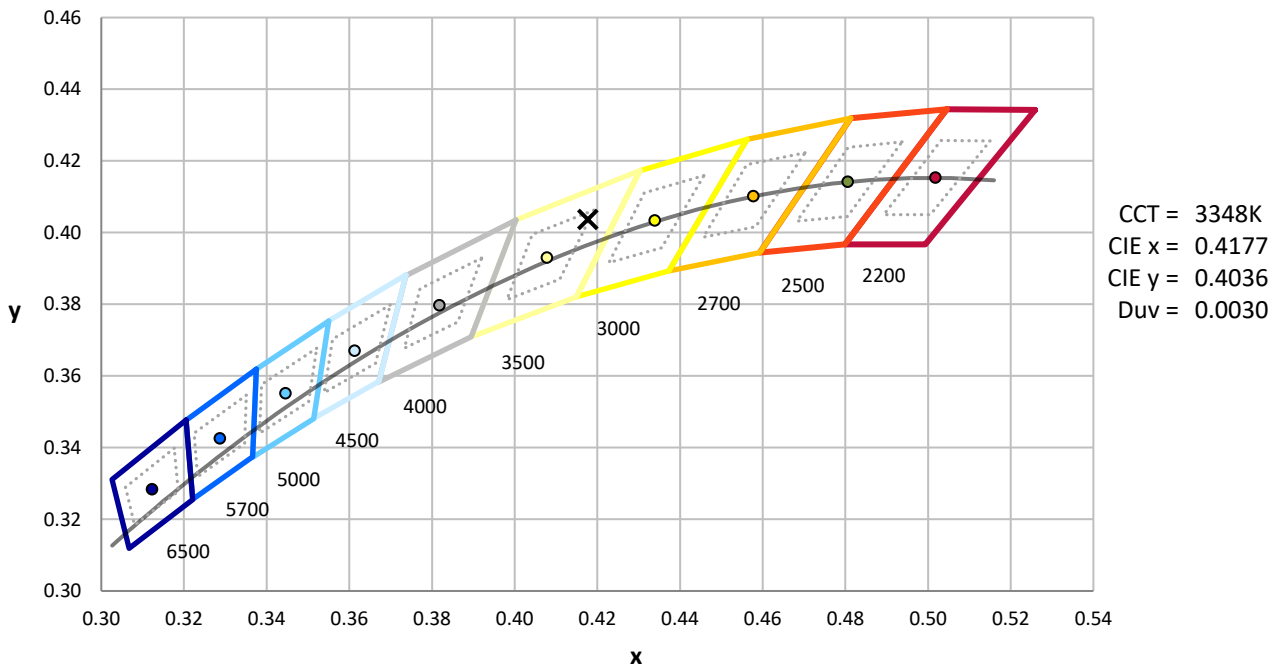
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| 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: SP1-2407-176-4

**CIE 1931 Chromaticity Diagram**



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



Point lies inside the ANSI 3500K 4-step quadrangle

REPORT NUMBER: SP1-2407-176-4

### Photopic Flux vs. Wavelength

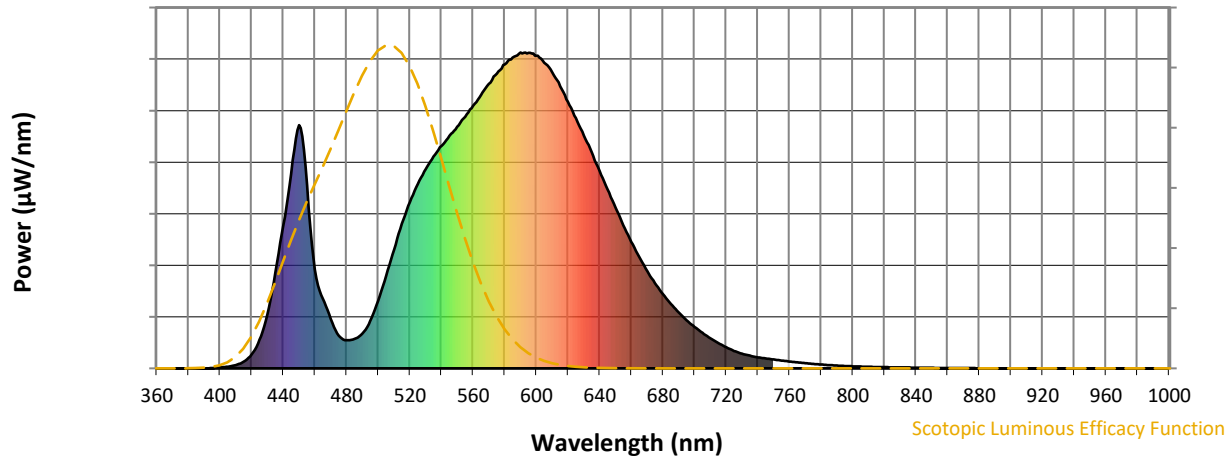


### Photopic Lumens: NR

| $\lambda$<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               | 110                                  | NR                             | 620               | 844                                  | NR                             | 750               | 28                                   | NR                             | 880               | 0                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 150                                  | NR                             | 625               | 792                                  | NR                             | 755               | 25                                   | NR                             | 885               | 0                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 214                                  | NR                             | 630               | 737                                  | NR                             | 760               | 22                                   | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 293                                  | NR                             | 635               | 683                                  | NR                             | 765               | 19                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 376                                  | NR                             | 640               | 625                                  | NR                             | 770               | 16                                   | NR                             | 900               | 0                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 458                                  | NR                             | 645               | 566                                  | NR                             | 775               | 14                                   | NR                             | 905               | 0                                    | NR                             |
| 390               | 0                                    | NR                             | 520               | 526                                  | NR                             | 650               | 509                                  | NR                             | 780               | 12                                   | NR                             | 910               | 0                                    | NR                             |
| 395               | 1                                    | NR                             | 525               | 584                                  | NR                             | 655               | 453                                  | NR                             | 785               | 10                                   | NR                             | 915               | 0                                    | NR                             |
| 400               | 3                                    | NR                             | 530               | 631                                  | NR                             | 660               | 401                                  | NR                             | 790               | 9                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 5                                    | NR                             | 535               | 671                                  | NR                             | 665               | 353                                  | NR                             | 795               | 8                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 10                                   | NR                             | 540               | 704                                  | NR                             | 670               | 308                                  | NR                             | 800               | 7                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 21                                   | NR                             | 545               | 737                                  | NR                             | 675               | 269                                  | NR                             | 805               | 6                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 44                                   | NR                             | 550               | 766                                  | NR                             | 680               | 235                                  | NR                             | 810               | 5                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 90                                   | NR                             | 555               | 797                                  | NR                             | 685               | 204                                  | NR                             | 815               | 4                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 171                                  | NR                             | 560               | 832                                  | NR                             | 690               | 177                                  | NR                             | 820               | 4                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 305                                  | NR                             | 565               | 866                                  | NR                             | 695               | 152                                  | NR                             | 825               | 3                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 455                                  | NR                             | 570               | 901                                  | NR                             | 700               | 131                                  | NR                             | 830               | 3                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 615                                  | NR                             | 575               | 933                                  | NR                             | 705               | 112                                  | NR                             | 835               | 3                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 771                                  | NR                             | 580               | 963                                  | NR                             | 710               | 96                                   | NR                             | 840               | 2                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 579                                  | NR                             | 585               | 984                                  | NR                             | 715               | 80                                   | NR                             | 845               | 2                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 313                                  | NR                             | 590               | 1000                                 | NR                             | 720               | 67                                   | NR                             | 850               | 2                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 221                                  | NR                             | 595               | 999                                  | NR                             | 725               | 55                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 156                                  | NR                             | 600               | 990                                  | NR                             | 730               | 46                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 103                                  | NR                             | 605               | 968                                  | NR                             | 735               | 40                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 89                                   | NR                             | 610               | 937                                  | NR                             | 740               | 35                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 93                                   | NR                             | 615               | 893                                  | NR                             | 745               | 31                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

REPORT NUMBER: SP1-2407-176-4

### Scotopic Flux vs. Wavelength



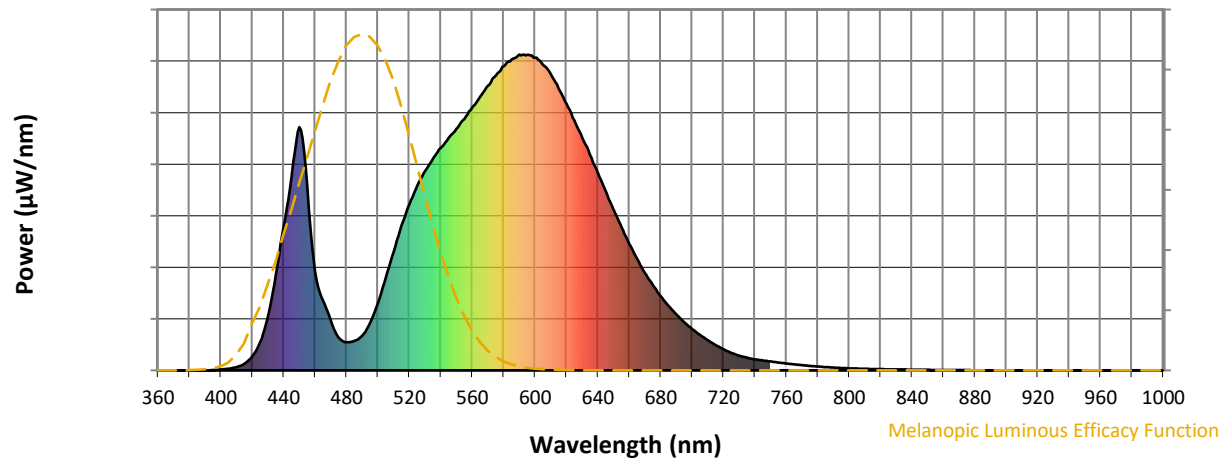
Scotopic Lumens: NR

S/P: 1.31

| 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    | 110                      | NR            | 620    | 844                      | NR            | 750    | 28                       | NR            | 880    | 0                        | NR            |
| 365    | 0                        | NR            | 495    | 150                      | NR            | 625    | 792                      | NR            | 755    | 25                       | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 214                      | NR            | 630    | 737                      | NR            | 760    | 22                       | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 293                      | NR            | 635    | 683                      | NR            | 765    | 19                       | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 376                      | NR            | 640    | 625                      | NR            | 770    | 16                       | NR            | 900    | 0                        | NR            |
| 385    | 0                        | NR            | 515    | 458                      | NR            | 645    | 566                      | NR            | 775    | 14                       | NR            | 905    | 0                        | NR            |
| 390    | 0                        | NR            | 520    | 526                      | NR            | 650    | 509                      | NR            | 780    | 12                       | NR            | 910    | 0                        | NR            |
| 395    | 1                        | NR            | 525    | 584                      | NR            | 655    | 453                      | NR            | 785    | 10                       | NR            | 915    | 0                        | NR            |
| 400    | 3                        | NR            | 530    | 631                      | NR            | 660    | 401                      | NR            | 790    | 9                        | NR            | 920    | 0                        | NR            |
| 405    | 5                        | NR            | 535    | 671                      | NR            | 665    | 353                      | NR            | 795    | 8                        | NR            | 925    | 0                        | NR            |
| 410    | 10                       | NR            | 540    | 704                      | NR            | 670    | 308                      | NR            | 800    | 7                        | NR            | 930    | 0                        | NR            |
| 415    | 21                       | NR            | 545    | 737                      | NR            | 675    | 269                      | NR            | 805    | 6                        | NR            | 935    | 0                        | NR            |
| 420    | 44                       | NR            | 550    | 766                      | NR            | 680    | 235                      | NR            | 810    | 5                        | NR            | 940    | 0                        | NR            |
| 425    | 90                       | NR            | 555    | 797                      | NR            | 685    | 204                      | NR            | 815    | 4                        | NR            | 945    | 0                        | NR            |
| 430    | 171                      | NR            | 560    | 832                      | NR            | 690    | 177                      | NR            | 820    | 4                        | NR            | 950    | 0                        | NR            |
| 435    | 305                      | NR            | 565    | 866                      | NR            | 695    | 152                      | NR            | 825    | 3                        | NR            | 955    | 0                        | NR            |
| 440    | 455                      | NR            | 570    | 901                      | NR            | 700    | 131                      | NR            | 830    | 3                        | NR            | 960    | 0                        | NR            |
| 445    | 615                      | NR            | 575    | 933                      | NR            | 705    | 112                      | NR            | 835    | 3                        | NR            | 965    | 0                        | NR            |
| 450    | 771                      | NR            | 580    | 963                      | NR            | 710    | 96                       | NR            | 840    | 2                        | NR            | 970    | 0                        | NR            |
| 455    | 579                      | NR            | 585    | 984                      | NR            | 715    | 80                       | NR            | 845    | 2                        | NR            | 975    | 0                        | NR            |
| 460    | 313                      | NR            | 590    | 1000                     | NR            | 720    | 67                       | NR            | 850    | 2                        | NR            | 980    | 0                        | NR            |
| 465    | 221                      | NR            | 595    | 999                      | NR            | 725    | 55                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 156                      | NR            | 600    | 990                      | NR            | 730    | 46                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 103                      | NR            | 605    | 968                      | NR            | 735    | 40                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 89                       | NR            | 610    | 937                      | NR            | 740    | 35                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 93                       | NR            | 615    | 893                      | NR            | 745    | 31                       | NR            | 875    | 1                        | NR            |        |                          |               |

REPORT NUMBER: SP1-2407-176-4

### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.4

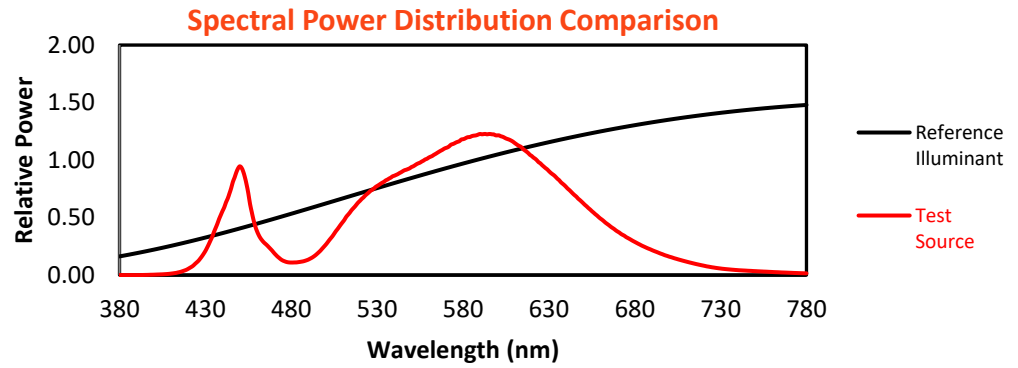
| $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | 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               | 110                                    | NR                             | 620               | 844                                    | NR                             | 750               | 28                                     | NR                             | 880               | 0                                      | NR                             |
| 365               | 0                                      | NR                             | 495               | 150                                    | NR                             | 625               | 792                                    | NR                             | 755               | 25                                     | NR                             | 885               | 0                                      | NR                             |
| 370               | 0                                      | NR                             | 500               | 214                                    | NR                             | 630               | 737                                    | NR                             | 760               | 22                                     | NR                             | 890               | 0                                      | NR                             |
| 375               | 0                                      | NR                             | 505               | 293                                    | NR                             | 635               | 683                                    | NR                             | 765               | 19                                     | NR                             | 895               | 0                                      | NR                             |
| 380               | 0                                      | NR                             | 510               | 376                                    | NR                             | 640               | 625                                    | NR                             | 770               | 16                                     | NR                             | 900               | 0                                      | NR                             |
| 385               | 0                                      | NR                             | 515               | 458                                    | NR                             | 645               | 566                                    | NR                             | 775               | 14                                     | NR                             | 905               | 0                                      | NR                             |
| 390               | 0                                      | NR                             | 520               | 526                                    | NR                             | 650               | 509                                    | NR                             | 780               | 12                                     | NR                             | 910               | 0                                      | NR                             |
| 395               | 1                                      | NR                             | 525               | 584                                    | NR                             | 655               | 453                                    | NR                             | 785               | 10                                     | NR                             | 915               | 0                                      | NR                             |
| 400               | 3                                      | NR                             | 530               | 631                                    | NR                             | 660               | 401                                    | NR                             | 790               | 9                                      | NR                             | 920               | 0                                      | NR                             |
| 405               | 5                                      | NR                             | 535               | 671                                    | NR                             | 665               | 353                                    | NR                             | 795               | 8                                      | NR                             | 925               | 0                                      | NR                             |
| 410               | 10                                     | NR                             | 540               | 704                                    | NR                             | 670               | 308                                    | NR                             | 800               | 7                                      | NR                             | 930               | 0                                      | NR                             |
| 415               | 21                                     | NR                             | 545               | 737                                    | NR                             | 675               | 269                                    | NR                             | 805               | 6                                      | NR                             | 935               | 0                                      | NR                             |
| 420               | 44                                     | NR                             | 550               | 766                                    | NR                             | 680               | 235                                    | NR                             | 810               | 5                                      | NR                             | 940               | 0                                      | NR                             |
| 425               | 90                                     | NR                             | 555               | 797                                    | NR                             | 685               | 204                                    | NR                             | 815               | 4                                      | NR                             | 945               | 0                                      | NR                             |
| 430               | 171                                    | NR                             | 560               | 832                                    | NR                             | 690               | 177                                    | NR                             | 820               | 4                                      | NR                             | 950               | 0                                      | NR                             |
| 435               | 305                                    | NR                             | 565               | 866                                    | NR                             | 695               | 152                                    | NR                             | 825               | 3                                      | NR                             | 955               | 0                                      | NR                             |
| 440               | 455                                    | NR                             | 570               | 901                                    | NR                             | 700               | 131                                    | NR                             | 830               | 3                                      | NR                             | 960               | 0                                      | NR                             |
| 445               | 615                                    | NR                             | 575               | 933                                    | NR                             | 705               | 112                                    | NR                             | 835               | 3                                      | NR                             | 965               | 0                                      | NR                             |
| 450               | 771                                    | NR                             | 580               | 963                                    | NR                             | 710               | 96                                     | NR                             | 840               | 2                                      | NR                             | 970               | 0                                      | NR                             |
| 455               | 579                                    | NR                             | 585               | 984                                    | NR                             | 715               | 80                                     | NR                             | 845               | 2                                      | NR                             | 975               | 0                                      | NR                             |
| 460               | 313                                    | NR                             | 590               | 1000                                   | NR                             | 720               | 67                                     | NR                             | 850               | 2                                      | NR                             | 980               | 0                                      | NR                             |
| 465               | 221                                    | NR                             | 595               | 999                                    | NR                             | 725               | 55                                     | NR                             | 855               | 1                                      | NR                             | 985               | 0                                      | NR                             |
| 470               | 156                                    | NR                             | 600               | 990                                    | NR                             | 730               | 46                                     | NR                             | 860               | 1                                      | NR                             | 990               | 0                                      | NR                             |
| 475               | 103                                    | NR                             | 605               | 968                                    | NR                             | 735               | 40                                     | NR                             | 865               | 1                                      | NR                             | 995               | 0                                      | NR                             |
| 480               | 89                                     | NR                             | 610               | 937                                    | NR                             | 740               | 35                                     | NR                             | 870               | 1                                      | NR                             | 1000              | 0                                      | NR                             |
| 485               | 93                                     | NR                             | 615               | 893                                    | NR                             | 745               | 31                                     | NR                             | 875               | 1                                      | NR                             |                   |                                        |                                |

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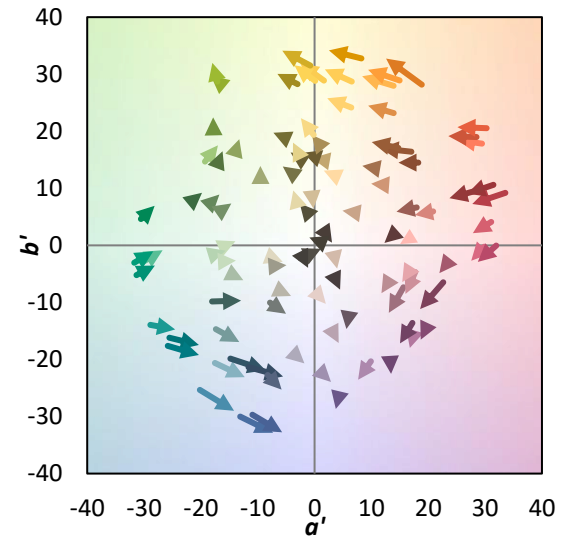
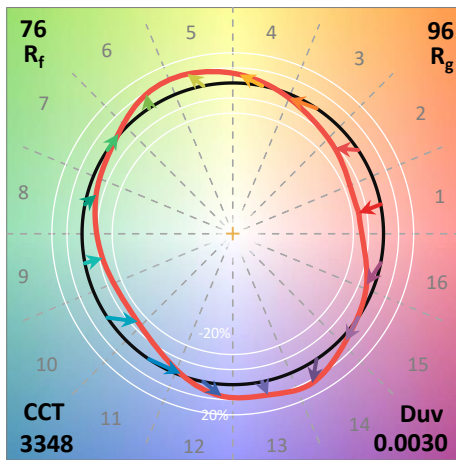
TM-30-18

### Summary

$R_f = 75.8$   
 $R_g = 95.8$   
 $CIE R_a = 73.4$   
 $R_g = -19.2$

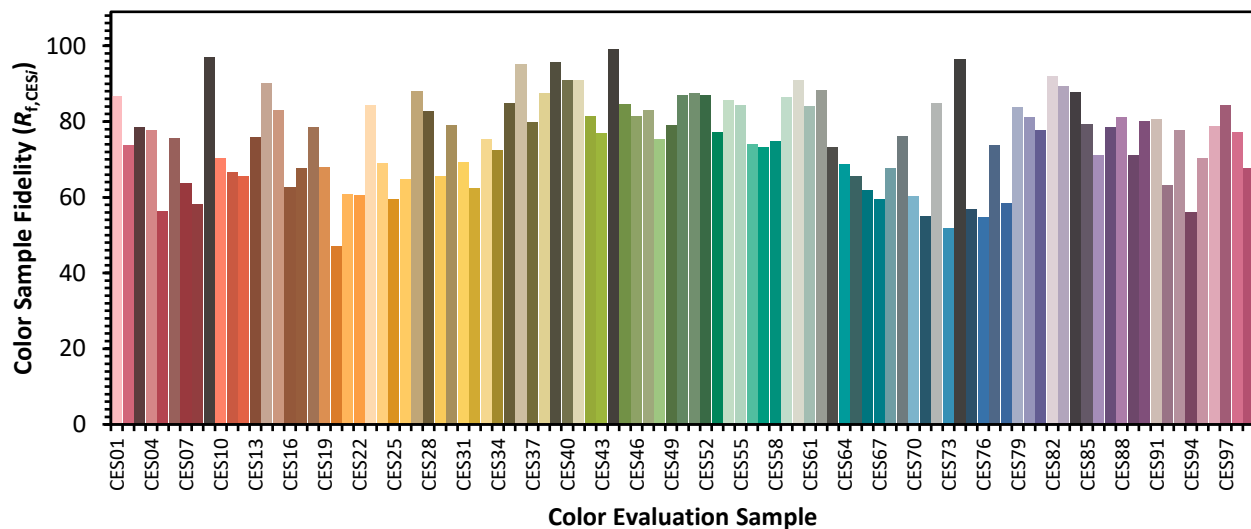


### Color Vector Graphics

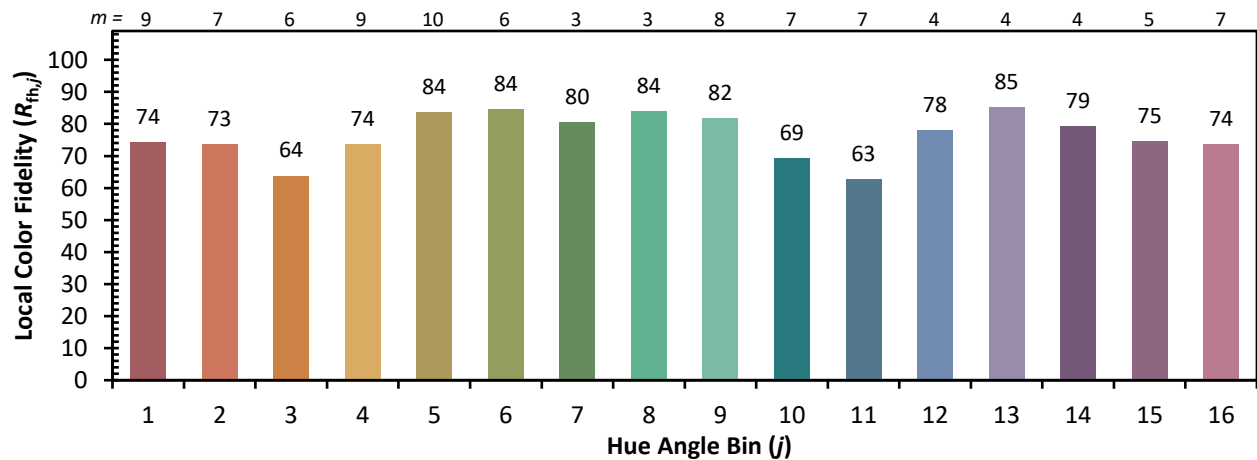
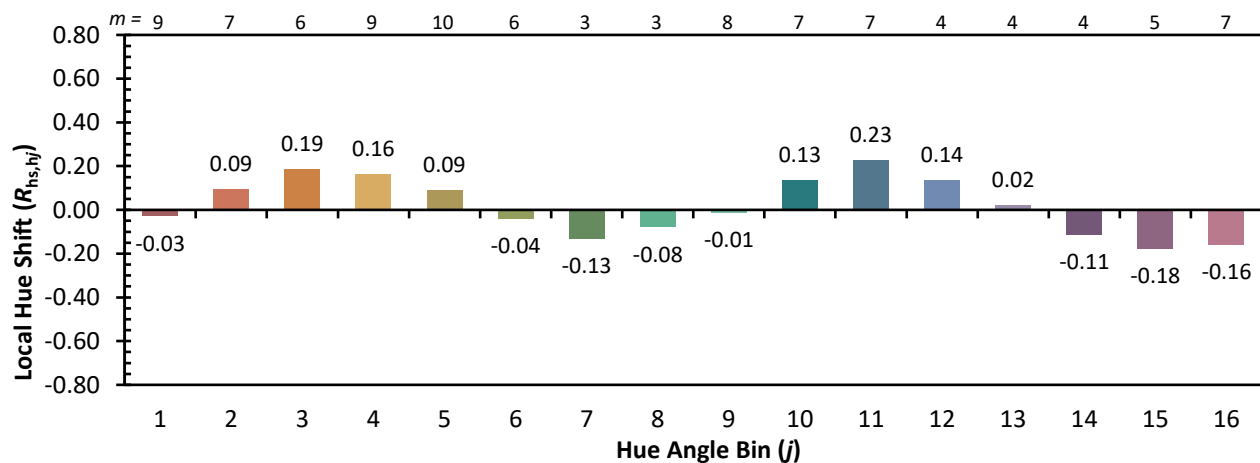
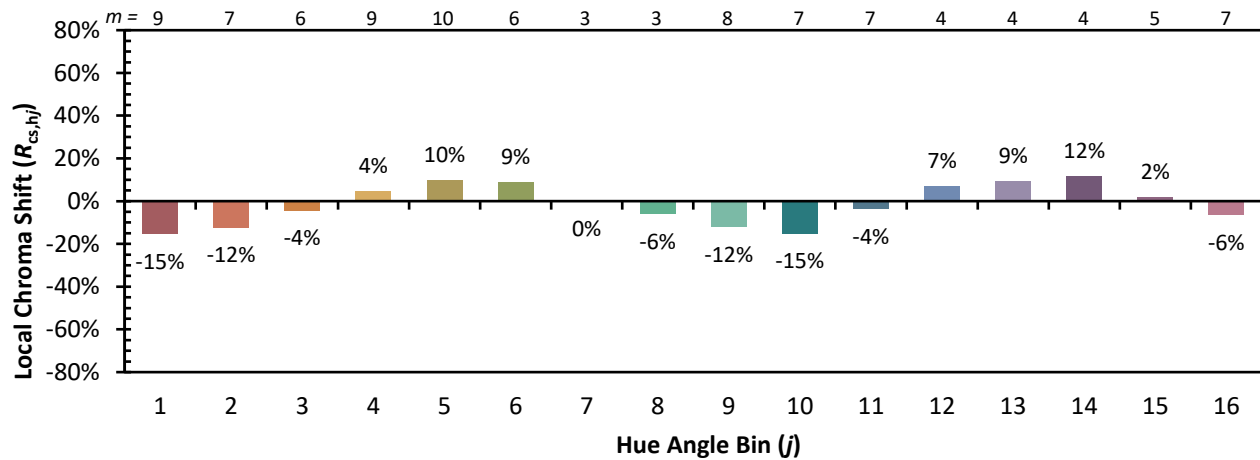


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

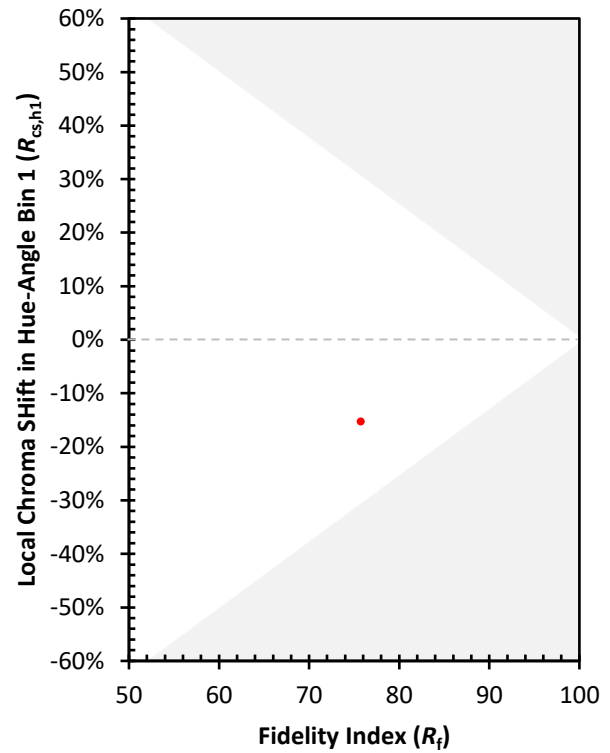
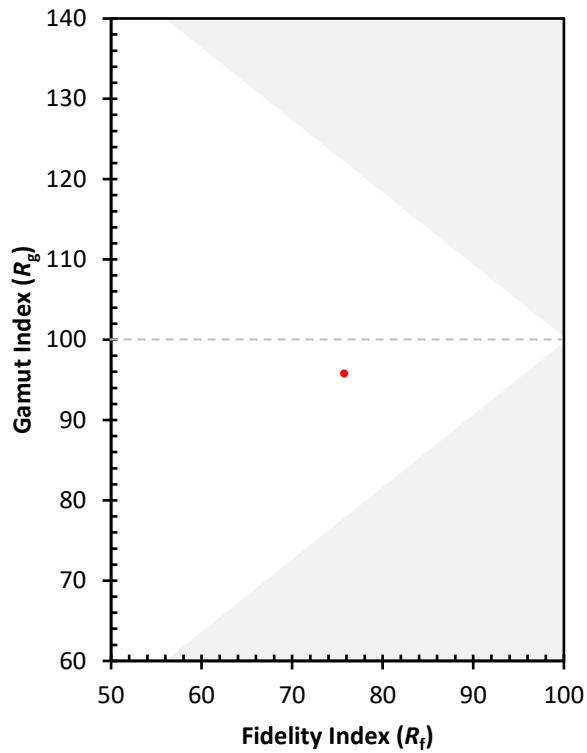
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 65 | CES51 = 88 | CES76 = 55 |
| CES02 = 62 | CES27 = 88 | CES52 = 87 | CES77 = 74 |
| CES03 = 31 | CES28 = 83 | CES53 = 77 | CES78 = 58 |
| CES04 = 70 | CES29 = 66 | CES54 = 86 | CES79 = 84 |
| CES05 = 48 | CES30 = 79 | CES55 = 84 | CES80 = 81 |
| CES06 = 51 | CES31 = 69 | CES56 = 74 | CES81 = 78 |
| CES07 = 41 | CES32 = 62 | CES57 = 73 | CES82 = 92 |
| CES08 = 40 | CES33 = 75 | CES58 = 75 | CES83 = 89 |
| CES09 = 29 | CES34 = 73 | CES59 = 87 | CES84 = 88 |
| CES10 = 75 | CES35 = 85 | CES60 = 91 | CES85 = 79 |
| CES11 = 58 | CES36 = 95 | CES61 = 84 | CES86 = 71 |
| CES12 = 64 | CES37 = 80 | CES62 = 88 | CES87 = 79 |
| CES13 = 43 | CES38 = 88 | CES63 = 73 | CES88 = 81 |
| CES14 = 74 | CES39 = 96 | CES64 = 69 | CES89 = 71 |
| CES15 = 71 | CES40 = 91 | CES65 = 66 | CES90 = 80 |
| CES16 = 47 | CES41 = 91 | CES66 = 62 | CES91 = 81 |
| CES17 = 50 | CES42 = 81 | CES67 = 60 | CES92 = 63 |
| CES18 = 56 | CES43 = 77 | CES68 = 68 | CES93 = 78 |
| CES19 = 72 | CES44 = 99 | CES69 = 76 | CES94 = 56 |
| CES20 = 65 | CES45 = 85 | CES70 = 60 | CES95 = 70 |
| CES21 = 87 | CES46 = 82 | CES71 = 55 | CES96 = 79 |
| CES22 = 79 | CES47 = 83 | CES72 = 85 | CES97 = 84 |
| CES23 = 92 | CES48 = 75 | CES73 = 52 | CES98 = 77 |
| CES24 = 91 | CES49 = 79 | CES74 = 96 | CES99 = 68 |
| CES25 = 72 | CES50 = 87 | CES75 = 57 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)