

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: P436812

Luminaire Tested: **TT-D3-750-U-5WQ-PM-HSS**

Issue Date: 12/2/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P436812  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2010-017-2)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/2/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: MCGRAW-EDISON  
Catalog Number: TT-D3-750-U-5WQ-PM-HSS  
Description: TOPTIER LED SITE LUMINAIRE  
5000K, 70 CRI LEDS AND WIDE DISTRIBUTION WITH HOUSE SIDE SHIELD  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5122 lumens  
Efficiency: N/A  
Efficacy: 108.5 lumens/watt  
Luminous Opening: Circular (Dia: 1.12' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B2 - U2 - G2

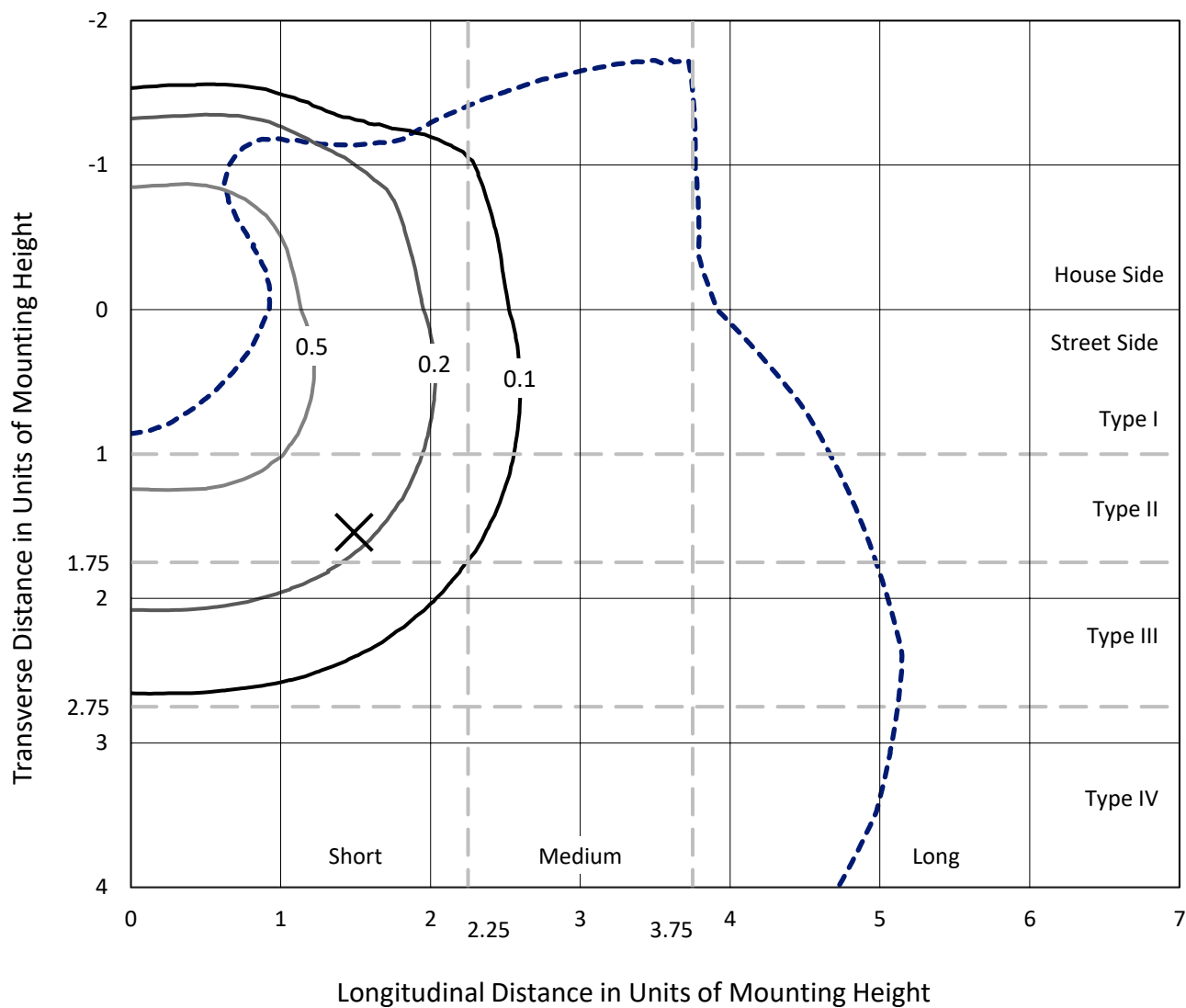
Input Watts (W): 47.2  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT



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## Iso-Footcandle Lines of Horizontal Illumination

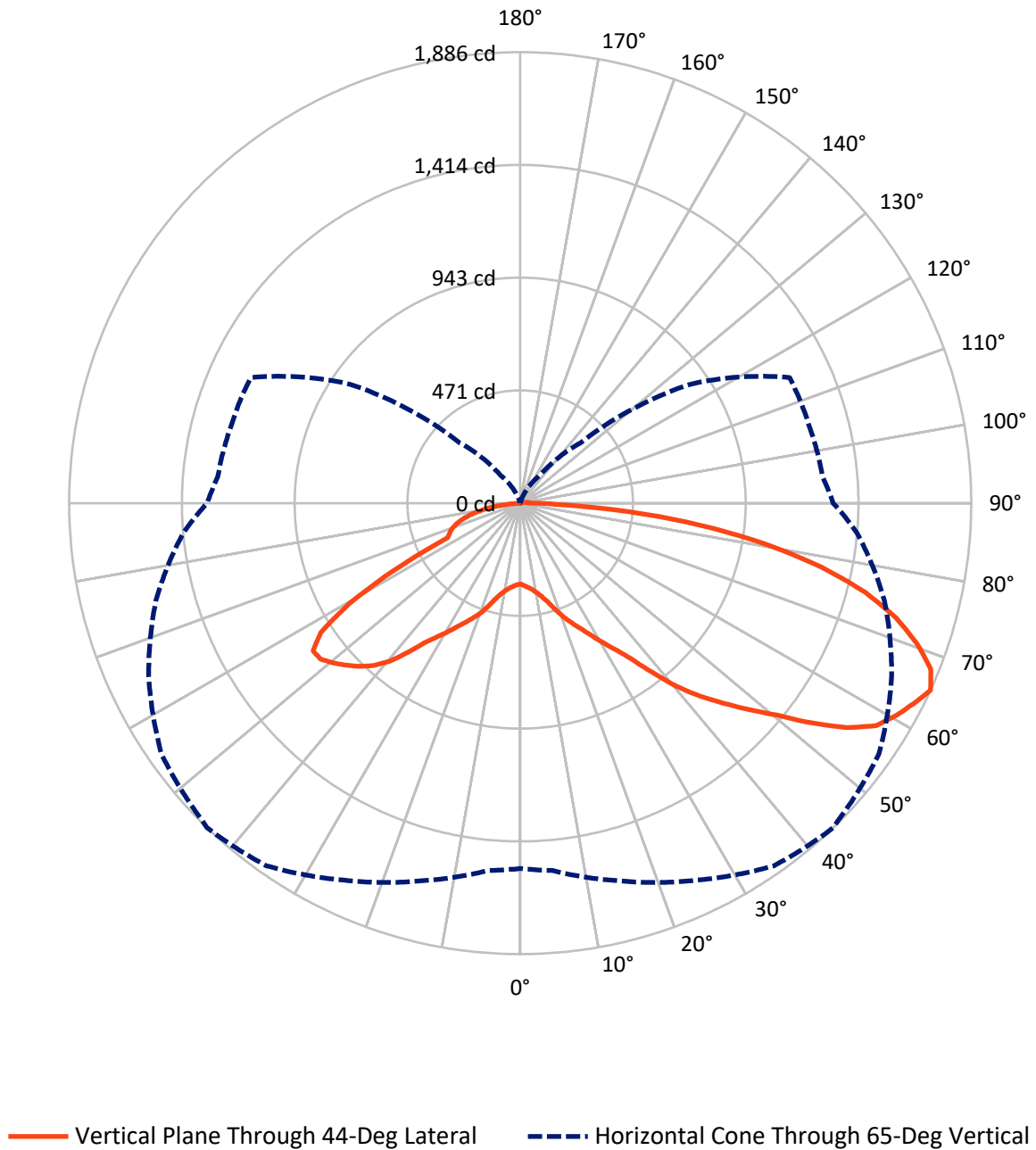
✕ Max cd  
 --- 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 0.7 fc  
 Type IV - Short - N/A

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## Luminous Intensity Polar Plot



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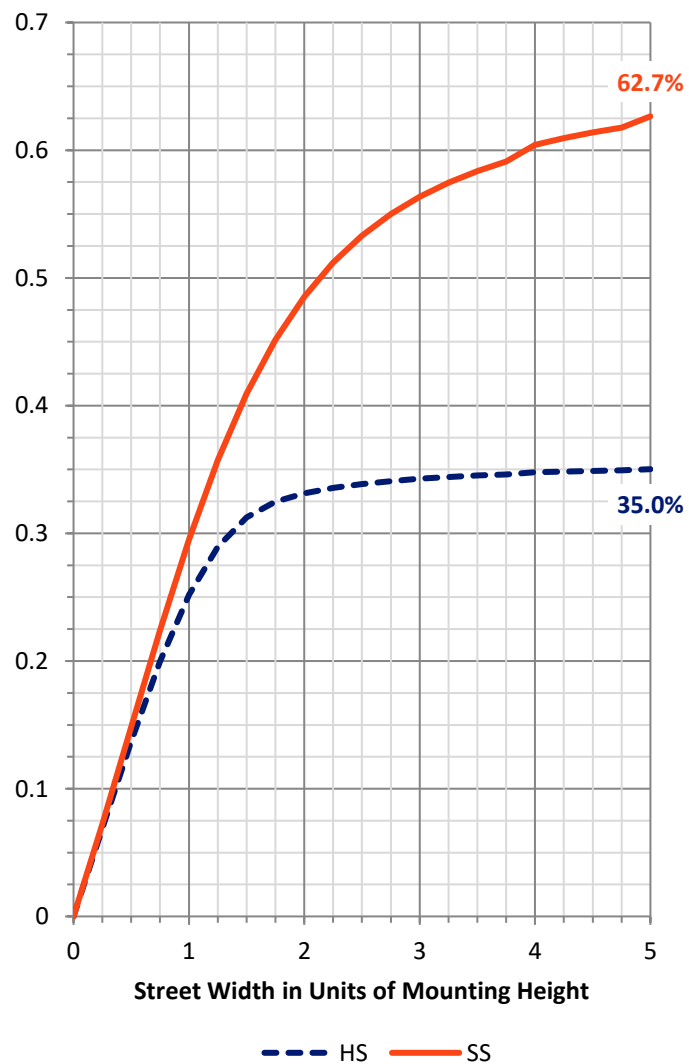
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 1804.1   | 1.2    | 1805.3 |
|                    | % Fixture | 35.2     | 0.0    | 35.2   |
| <b>Street Side</b> | Lumens    | 3296.0   | 20.7   | 3316.7 |
|                    | % Fixture | 64.3     | 0.4    | 64.8   |
| <b>Total</b>       | Lumens    | 5100.1   | 21.9   | 5122.0 |
|                    | % Fixture | 99.6     | 0.4    | 100.0  |

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 34.3   | 0.7       |
| 10°-20°   | 121.7  | 2.4       |
| 20°-30°   | 260.7  | 5.1       |
| 30°-40°   | 472.2  | 9.2       |
| 40°-50°   | 787.8  | 15.4      |
| 50°-60°   | 1091.2 | 21.3      |
| 60°-70°   | 1130.9 | 22.1      |
| 70°-80°   | 910.1  | 17.8      |
| 80°-90°   | 291.1  | 5.7       |
| 90°-100°  | 14.7   | 0.3       |
| 100°-110° | 4.7    | 0.1       |
| 110°-120° | 0.9    | 0.0       |
| 120°-130° | 0.6    | 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°    | 5100.1 | 99.6      |
| 0°-180°   | 5122.0 | 100.0     |

**Coefficient of Utilization**



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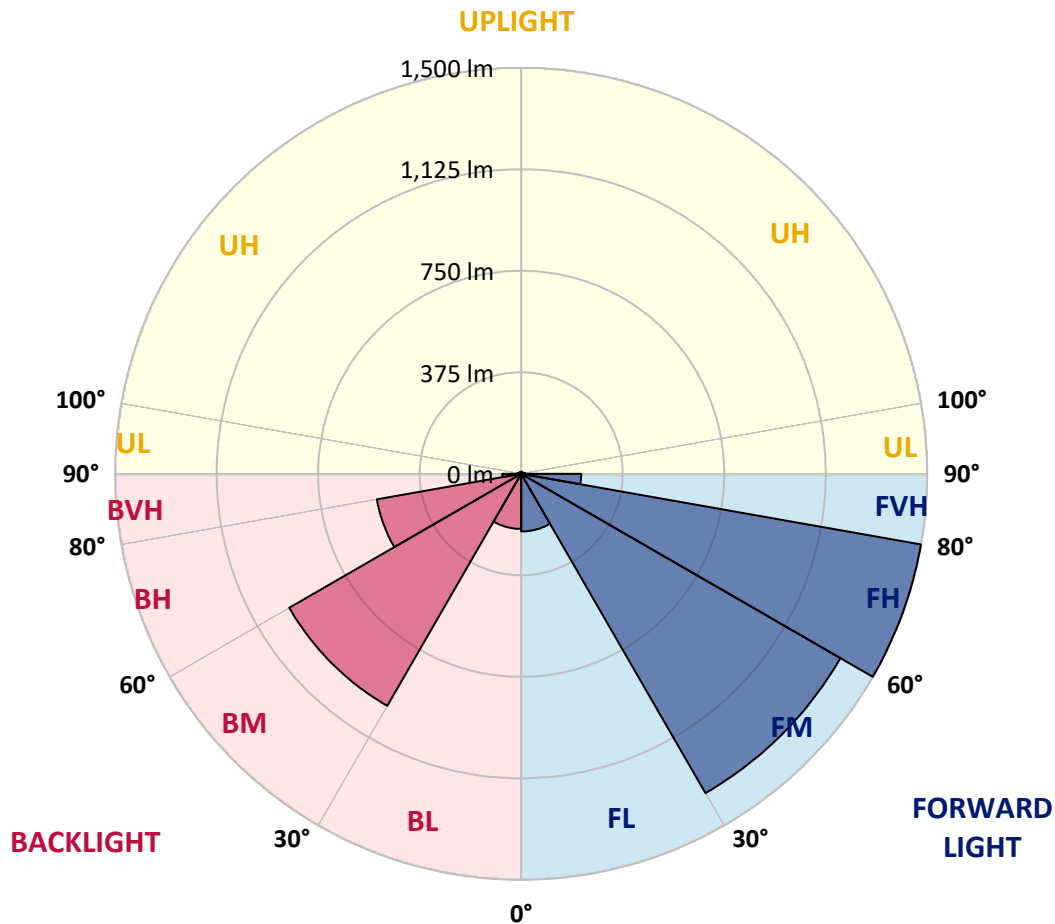
CATALOG NUMBER: TT-D3-750-U-5WQ-PM-HSS

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |       |         |
|------|-------------|--------|-----------|-------------------------|-------|---------|
|      |             |        |           | B                       | U     | G       |
| FL   | (0°-30°)    | 213.0  | 4.2       |                         |       |         |
| FM   | (30°-60°)   | 1361.7 | 26.6      |                         |       |         |
| FH   | (60°-80°)   | 1499.8 | 29.3      |                         |       | G1/1800 |
| FVH  | (80°-90°)   | 221.5  | 4.3       |                         |       | G2/225  |
| BL   | (0°-30°)    | 203.7  | 4.0       | B1/500                  |       |         |
| BM   | (30°-60°)   | 989.6  | 19.3      | B1/1000                 |       |         |
| BH   | (60°-80°)   | 541.2  | 10.6      | B2/1000                 |       | G2/1000 |
| BVH  | (80°-90°)   | 69.6   | 1.4       |                         |       | G1/100  |
| UL   | (90°-100°)  | 14.7   | 0.3       |                         | U2/50 |         |
| UH   | (100°-180°) | 7.2    | 0.1       |                         | U1/10 |         |

**BUG Rating: B2-U2-G2**

Type IV Short



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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 5°     | 15°    | 25°    | 35°    | 44°    | 45°    | 55°    | 65°    | 75°    | 85°    |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°     | 338.0  | 338.0  | 338.0  | 338.0  | 338.0  | 338.0  | 338.0  | 338.0  | 338.0  | 338.0  | 338.0  |
| 2.5°   | 348.0  | 347.0  | 347.0  | 346.0  | 346.0  | 346.0  | 346.0  | 346.0  | 345.0  | 344.0  | 343.0  |
| 5°     | 357.0  | 357.0  | 356.0  | 356.0  | 355.0  | 354.0  | 355.0  | 354.0  | 353.0  | 352.0  | 351.0  |
| 7.5°   | 369.0  | 368.0  | 368.0  | 366.0  | 366.0  | 365.0  | 365.0  | 365.0  | 364.0  | 362.0  | 361.0  |
| 10°    | 386.0  | 384.0  | 384.0  | 382.0  | 381.0  | 380.0  | 380.0  | 378.0  | 378.0  | 377.0  | 376.0  |
| 12.5°  | 405.0  | 403.0  | 405.0  | 404.0  | 402.0  | 400.0  | 400.0  | 398.0  | 397.0  | 396.0  | 392.0  |
| 15°    | 430.0  | 427.0  | 429.0  | 429.0  | 428.0  | 427.0  | 427.0  | 423.0  | 421.0  | 419.0  | 415.0  |
| 17.5°  | 460.0  | 458.0  | 459.0  | 460.0  | 463.0  | 463.0  | 464.0  | 459.0  | 455.0  | 448.0  | 445.0  |
| 20°    | 498.0  | 497.0  | 500.0  | 500.0  | 503.0  | 503.0  | 504.0  | 499.0  | 492.0  | 487.0  | 481.0  |
| 22.5°  | 535.0  | 535.0  | 539.0  | 539.0  | 542.0  | 540.0  | 540.0  | 538.0  | 530.0  | 524.0  | 518.0  |
| 25°    | 573.0  | 572.0  | 576.0  | 579.0  | 583.0  | 578.0  | 580.0  | 577.0  | 569.0  | 561.0  | 553.0  |
| 27.5°  | 615.0  | 613.0  | 615.0  | 619.0  | 626.0  | 622.0  | 624.0  | 619.0  | 611.0  | 600.0  | 593.0  |
| 30°    | 661.0  | 658.0  | 661.0  | 667.0  | 672.0  | 674.0  | 673.0  | 666.0  | 659.0  | 643.0  | 638.0  |
| 32.5°  | 706.0  | 706.0  | 713.0  | 724.0  | 730.0  | 729.0  | 730.0  | 724.0  | 714.0  | 694.0  | 682.0  |
| 35°    | 761.0  | 765.0  | 774.0  | 790.0  | 803.0  | 798.0  | 798.0  | 796.0  | 779.0  | 755.0  | 739.0  |
| 37.5°  | 834.0  | 838.0  | 856.0  | 875.0  | 899.0  | 897.0  | 898.0  | 892.0  | 859.0  | 834.0  | 811.0  |
| 40°    | 919.0  | 923.0  | 950.0  | 977.0  | 999.9  | 1006.9 | 1007.9 | 994.9  | 959.0  | 923.0  | 887.0  |
| 42.5°  | 996.9  | 1001.9 | 1029.9 | 1067.9 | 1092.9 | 1103.9 | 1105.9 | 1084.9 | 1046.9 | 1005.9 | 961.0  |
| 45°    | 1074.9 | 1080.9 | 1112.9 | 1152.9 | 1188.9 | 1193.9 | 1194.9 | 1176.9 | 1134.9 | 1087.9 | 1029.9 |
| 47.5°  | 1154.9 | 1159.9 | 1192.9 | 1240.9 | 1279.9 | 1289.9 | 1290.9 | 1273.9 | 1222.9 | 1165.9 | 1097.9 |
| 50°    | 1227.9 | 1237.9 | 1282.9 | 1333.9 | 1385.9 | 1393.9 | 1394.9 | 1375.9 | 1315.9 | 1251.9 | 1161.9 |
| 52.5°  | 1313.9 | 1318.9 | 1366.9 | 1451.9 | 1495.9 | 1526.9 | 1527.9 | 1490.9 | 1426.9 | 1340.9 | 1224.9 |
| 55°    | 1413.9 | 1422.9 | 1471.9 | 1556.9 | 1635.9 | 1656.9 | 1662.9 | 1618.9 | 1533.9 | 1440.9 | 1304.9 |
| 57.5°  | 1471.9 | 1488.9 | 1560.9 | 1641.9 | 1740.9 | 1754.9 | 1757.9 | 1711.9 | 1617.9 | 1515.9 | 1364.9 |
| 60°    | 1502.9 | 1512.9 | 1588.9 | 1714.9 | 1791.9 | 1804.9 | 1803.9 | 1768.9 | 1674.9 | 1550.9 | 1392.9 |
| 62.5°  | 1537.9 | 1554.9 | 1618.9 | 1746.9 | 1813.9 | 1845.9 | 1840.9 | 1804.9 | 1708.9 | 1572.9 | 1419.9 |
| 65°    | 1527.9 | 1541.9 | 1635.9 | 1739.9 | 1850.9 | 1885.9 | 1878.9 | 1830.9 | 1713.9 | 1576.9 | 1412.9 |
| 67.5°  | 1487.9 | 1498.9 | 1591.9 | 1720.9 | 1826.9 | 1851.9 | 1863.9 | 1816.9 | 1685.9 | 1533.9 | 1368.9 |
| 70°    | 1405.9 | 1422.9 | 1512.9 | 1644.9 | 1741.9 | 1759.9 | 1761.9 | 1732.9 | 1614.9 | 1454.9 | 1295.9 |
| 72.5°  | 1292.9 | 1306.9 | 1404.9 | 1538.9 | 1622.9 | 1643.9 | 1645.9 | 1601.9 | 1512.9 | 1346.9 | 1190.9 |
| 75°    | 1157.9 | 1170.9 | 1246.9 | 1386.9 | 1469.9 | 1490.9 | 1488.9 | 1447.9 | 1353.9 | 1196.9 | 1051.9 |
| 77.5°  | 990.9  | 1014.9 | 1081.9 | 1196.9 | 1277.9 | 1288.9 | 1290.9 | 1245.9 | 1169.9 | 1033.9 | 893.0  |
| 80°    | 782.0  | 805.0  | 881.0  | 967.0  | 1034.9 | 1043.9 | 1046.9 | 1008.9 | 940.0  | 820.0  | 700.0  |
| 82.5°  | 556.0  | 576.0  | 636.0  | 706.0  | 763.0  | 763.0  | 765.0  | 734.0  | 681.0  | 578.0  | 484.0  |
| 85°    | 317.0  | 332.0  | 372.0  | 422.0  | 463.0  | 458.0  | 459.0  | 431.0  | 396.0  | 316.0  | 256.0  |
| 87.5°  | 104.0  | 111.0  | 120.0  | 139.0  | 158.0  | 146.0  | 152.0  | 126.0  | 114.0  | 85.0   | 66.0   |
| 90°    | 55.0   | 55.0   | 53.0   | 51.0   | 47.0   | 41.0   | 41.0   | 33.0   | 25.0   | 16.0   | 6.0    |
| 92.5°  | 50.0   | 50.0   | 48.0   | 46.0   | 42.0   | 37.0   | 37.0   | 30.0   | 22.0   | 14.0   | 5.0    |
| 95°    | 41.0   | 41.0   | 40.0   | 38.0   | 35.0   | 31.0   | 30.0   | 25.0   | 19.0   | 11.0   | 4.0    |
| 97.5°  | 32.0   | 32.0   | 31.0   | 30.0   | 27.0   | 24.0   | 24.0   | 19.0   | 14.0   | 9.0    | 3.0    |
| 100°   | 24.0   | 24.0   | 24.0   | 22.0   | 21.0   | 18.0   | 18.0   | 15.0   | 11.0   | 7.0    | 2.0    |
| 102.5° | 17.0   | 18.0   | 17.0   | 16.0   | 15.0   | 13.0   | 13.0   | 11.0   | 8.0    | 5.0    | 2.0    |
| 105°   | 12.0   | 12.0   | 11.0   | 11.0   | 10.0   | 9.0    | 9.0    | 7.0    | 5.0    | 3.0    | 1.0    |
| 107.5° | 7.0    | 7.0    | 7.0    | 7.0    | 6.0    | 6.0    | 6.0    | 5.0    | 3.0    | 2.0    | 1.0    |
| 110°   | 4.0    | 4.0    | 4.0    | 4.0    | 3.0    | 3.0    | 3.0    | 2.0    | 2.0    | 1.0    | 1.0    |

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**CANDELA DISTRIBUTION (continued):**

|        | 0°  | 5°  | 15° | 25° | 35° | 44° | 45° | 55° | 65° | 75° | 85° |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 112.5° | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 115°   | 1.0 | 1.0 | 1.0 | 2.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 117.5° | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 120°   | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 122.5° | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 125°   | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 127.5° | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 130°   | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 132.5° | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 135°   | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 137.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 140°   | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 142.5° | 1.0 | 1.0 | 1.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 145°   | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 147.5° | 1.0 | 1.0 | 1.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 150°   | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 152.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 155°   | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 |
| 157.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 160°   | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 162.5° | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 165°   | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 167.5° | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 170°   | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 172.5° | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 175°   | 1.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 177.5° | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 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°     | 338.0  | 338.0  | 338.0  | 338.0  | 338.0  | 338.0  | 338.0 | 338.0 | 338.0 | 338.0 | 338.0 |
| 2.5°   | 343.0  | 343.0  | 342.0  | 341.0  | 341.0  | 341.0  | 340.0 | 340.0 | 340.0 | 339.0 | 339.0 |
| 5°     | 351.0  | 350.0  | 350.0  | 349.0  | 349.0  | 348.0  | 348.0 | 347.0 | 346.0 | 346.0 | 345.0 |
| 7.5°   | 362.0  | 361.0  | 359.0  | 360.0  | 358.0  | 357.0  | 356.0 | 356.0 | 356.0 | 355.0 | 355.0 |
| 10°    | 375.0  | 375.0  | 373.0  | 373.0  | 371.0  | 370.0  | 369.0 | 369.0 | 370.0 | 370.0 | 369.0 |
| 12.5°  | 392.0  | 391.0  | 391.0  | 390.0  | 389.0  | 388.0  | 389.0 | 389.0 | 388.0 | 387.0 | 386.0 |
| 15°    | 413.0  | 413.0  | 413.0  | 414.0  | 413.0  | 413.0  | 413.0 | 412.0 | 410.0 | 408.0 | 408.0 |
| 17.5°  | 445.0  | 444.0  | 442.0  | 443.0  | 445.0  | 448.0  | 445.0 | 442.0 | 439.0 | 439.0 | 438.0 |
| 20°    | 478.0  | 479.0  | 479.0  | 480.0  | 483.0  | 486.0  | 482.0 | 480.0 | 478.0 | 476.0 | 474.0 |
| 22.5°  | 514.0  | 515.0  | 515.0  | 514.0  | 516.0  | 515.0  | 513.0 | 511.0 | 509.0 | 506.0 | 504.0 |
| 25°    | 549.0  | 550.0  | 549.0  | 548.0  | 549.0  | 546.0  | 543.0 | 540.0 | 535.0 | 530.0 | 530.0 |
| 27.5°  | 588.0  | 587.0  | 583.0  | 584.0  | 582.0  | 580.0  | 574.0 | 567.0 | 560.0 | 555.0 | 555.0 |
| 30°    | 629.0  | 629.0  | 621.0  | 625.0  | 621.0  | 620.0  | 607.0 | 598.0 | 588.0 | 581.0 | 580.0 |
| 32.5°  | 674.0  | 672.0  | 666.0  | 670.0  | 666.0  | 662.0  | 646.0 | 634.0 | 617.0 | 607.0 | 606.0 |
| 35°    | 728.0  | 723.0  | 718.0  | 722.0  | 722.0  | 711.0  | 695.0 | 673.0 | 649.0 | 637.0 | 636.0 |
| 37.5°  | 794.0  | 791.0  | 785.0  | 790.0  | 794.0  | 783.0  | 759.0 | 727.0 | 693.0 | 675.0 | 674.0 |
| 40°    | 867.0  | 863.0  | 860.0  | 867.0  | 870.0  | 859.0  | 827.0 | 782.0 | 736.0 | 710.0 | 706.0 |
| 42.5°  | 936.0  | 927.0  | 922.0  | 932.0  | 929.0  | 917.0  | 873.0 | 821.0 | 758.0 | 728.0 | 723.0 |
| 45°    | 997.9  | 987.9  | 980.9  | 989.9  | 985.9  | 962.0  | 913.0 | 843.0 | 767.0 | 730.0 | 724.0 |
| 47.5°  | 1058.9 | 1043.9 | 1032.9 | 1044.9 | 1036.9 | 999.9  | 940.0 | 854.0 | 757.0 | 713.0 | 703.0 |
| 50°    | 1110.9 | 1092.9 | 1085.9 | 1099.9 | 1087.9 | 1035.9 | 959.0 | 849.0 | 732.0 | 668.0 | 652.0 |
| 52.5°  | 1172.9 | 1145.9 | 1138.9 | 1165.9 | 1138.9 | 1069.9 | 963.0 | 837.0 | 675.0 | 598.0 | 583.0 |
| 55°    | 1235.9 | 1205.9 | 1194.9 | 1219.9 | 1178.9 | 1076.9 | 943.0 | 768.0 | 589.0 | 507.0 | 485.0 |
| 57.5°  | 1268.9 | 1240.9 | 1230.9 | 1248.9 | 1172.9 | 1008.9 | 854.0 | 640.0 | 460.0 | 368.0 | 344.0 |
| 60°    | 1298.9 | 1249.9 | 1236.9 | 1260.9 | 1110.9 | 851.0  | 661.0 | 459.0 | 278.0 | 209.0 | 191.0 |
| 62.5°  | 1319.9 | 1272.9 | 1245.9 | 1256.9 | 996.9  | 619.0  | 380.0 | 221.0 | 105.0 | 73.0  | 72.0  |
| 65°    | 1308.9 | 1268.9 | 1250.9 | 1242.9 | 866.0  | 356.0  | 140.0 | 56.0  | 3.0   | 3.0   | 2.0   |
| 67.5°  | 1274.9 | 1230.9 | 1225.9 | 1232.9 | 857.0  | 342.0  | 130.0 | 51.0  | 0.0   | 0.0   | 0.0   |
| 70°    | 1199.9 | 1168.9 | 1168.9 | 1192.9 | 818.0  | 324.0  | 121.0 | 47.0  | 0.0   | 0.0   | 0.0   |
| 72.5°  | 1098.9 | 1074.9 | 1088.9 | 1124.9 | 760.0  | 299.0  | 109.0 | 42.0  | 0.0   | 0.0   | 0.0   |
| 75°    | 978.0  | 953.0  | 971.0  | 1010.9 | 688.0  | 267.0  | 95.0  | 36.0  | 0.0   | 0.0   | 0.0   |
| 77.5°  | 824.0  | 807.0  | 835.0  | 872.0  | 592.0  | 225.0  | 78.0  | 29.0  | 0.0   | 0.0   | 0.0   |
| 80°    | 642.0  | 633.0  | 670.0  | 703.0  | 478.0  | 177.0  | 59.0  | 21.0  | 0.0   | 0.0   | 0.0   |
| 82.5°  | 443.0  | 439.0  | 475.0  | 509.0  | 342.0  | 124.0  | 40.0  | 14.0  | 0.0   | 0.0   | 0.0   |
| 85°    | 232.0  | 232.0  | 260.0  | 291.0  | 191.0  | 67.0   | 20.0  | 6.0   | 0.0   | 0.0   | 0.0   |
| 87.5°  | 51.0   | 49.0   | 53.0   | 68.0   | 38.0   | 13.0   | 3.0   | 1.0   | 0.0   | 0.0   | 0.0   |
| 90°    | 1.0    | 1.0    | 1.0    | 1.0    | 0.0    | 0.0    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 92.5°  | 1.0    | 1.0    | 1.0    | 1.0    | 0.0    | 0.0    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 95°    | 1.0    | 1.0    | 1.0    | 1.0    | 0.0    | 0.0    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 97.5°  | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 0.0    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 100°   | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 0.0    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 102.5° | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 105°   | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 0.0    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 107.5° | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 0.0    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 110°   | 1.0    | 1.0    | 1.0    | 1.0    | 1.0    | 0.0    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

REPORT NUMBER: P436812

CATALOG NUMBER: TT-D3-750-U-5WQ-PM-HSS

**CANDELA DISTRIBUTION (continued):**

|        | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|--------|-----|-----|------|------|------|------|------|------|------|------|------|
| 112.5° | 1.0 | 1.0 | 1.0  | 1.0  | 1.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 115°   | 1.0 | 1.0 | 1.0  | 1.0  | 1.0  | 1.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 117.5° | 1.0 | 1.0 | 1.0  | 1.0  | 1.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 120°   | 1.0 | 1.0 | 1.0  | 1.0  | 1.0  | 1.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 122.5° | 1.0 | 1.0 | 1.0  | 1.0  | 1.0  | 1.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 125°   | 1.0 | 1.0 | 1.0  | 1.0  | 1.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 127.5° | 1.0 | 1.0 | 1.0  | 1.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 130°   | 1.0 | 1.0 | 1.0  | 1.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 132.5° | 1.0 | 1.0 | 1.0  | 1.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 135°   | 1.0 | 1.0 | 1.0  | 1.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 137.5° | 1.0 | 1.0 | 1.0  | 1.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 140°   | 1.0 | 1.0 | 1.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 142.5° | 1.0 | 1.0 | 1.0  | 1.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 145°   | 1.0 | 1.0 | 1.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 147.5° | 1.0 | 1.0 | 1.0  | 1.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 150°   | 1.0 | 1.0 | 1.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 152.5° | 1.0 | 1.0 | 1.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 155°   | 1.0 | 1.0 | 1.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 157.5° | 1.0 | 1.0 | 1.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 160°   | 1.0 | 1.0 | 1.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 162.5° | 1.0 | 1.0 | 1.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 165°   | 1.0 | 1.0 | 1.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 167.5° | 1.0 | 1.0 | 1.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 170°   | 1.0 | 1.0 | 1.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 172.5° | 1.0 | 1.0 | 1.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 175°   | 1.0 | 1.0 | 1.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 177.5° | 1.0 | 1.0 | 1.0  | 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-79-08: Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

McGRAW-EDISON

Report Number: SP1-2006-844-1

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

Data valid for TT-D\* and TTN families of products

Test Date: 11/06/2020

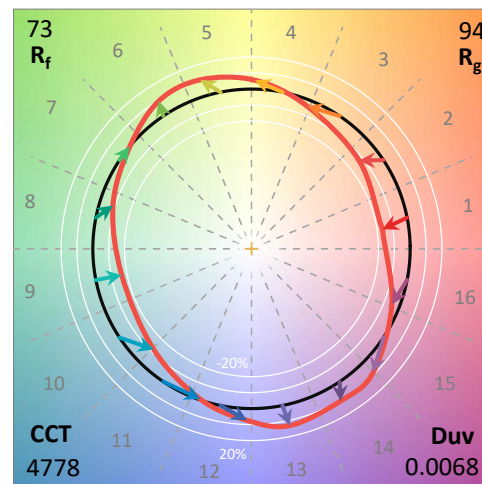
### Test Information

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

### DISTRIBUTION

### Spectral Parameters

|                           |        |           |      |      |       |
|---------------------------|--------|-----------|------|------|-------|
| CCT (K):                  | 4778   | CRI (Ra): | 71.0 |      |       |
| CIE u':                   | 0.2092 | R1:       | 67.7 | R9:  | -28.7 |
| CIE v':                   | 0.4955 | R2:       | 75.2 | R10: | 41.2  |
| Duv:                      | 0.0068 | R3:       | 80.8 | R11: | 67.2  |
| CIE x:                    | 0.3535 | R4:       | 71.5 | R12: | 35.9  |
| CIE y:                    | 0.3721 | R5:       | 67.8 | R13: | 68.5  |
| CIE z:                    | 0.2744 | R6:       | 65.6 | R14: | 89.2  |
| Peak Wavelength (nm):     | 449    | R7:       | 82.2 |      |       |
| Dominant Wavelength (nm): | 570    | R8:       | 57.2 |      |       |
| Purity:                   | 17.8   |           |      |      |       |
| Rf:                       | 73.3   |           |      |      |       |
| Rg:                       | 94.5   |           |      |      |       |



### Test Conditions

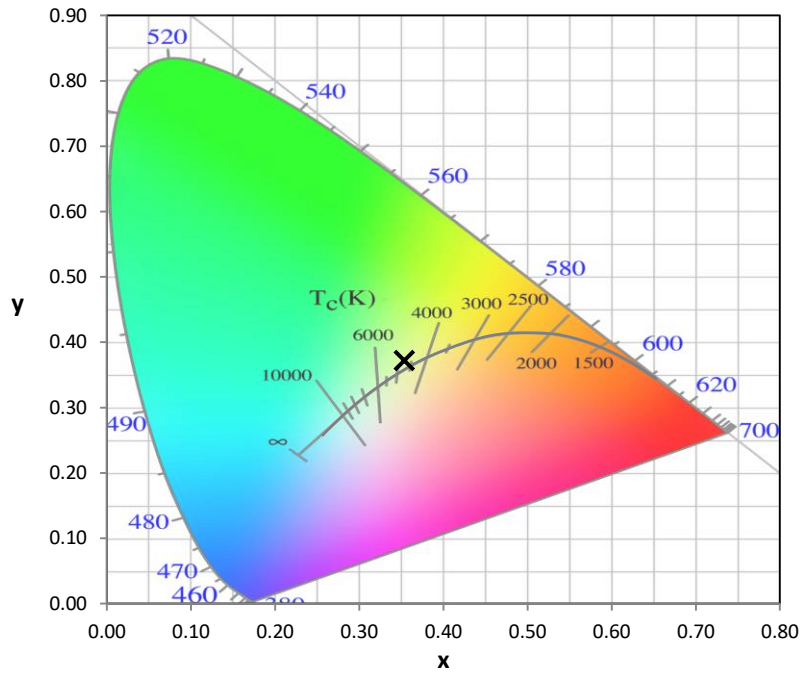
Stabilization Time: 62M  
 Operation Time: 12H  
 Room Temperature (°C) / RH%: 24.6/45%  
 Sphere Temperature (°C): 24.7

REPORT NUMBER: SP1-2006-844-1

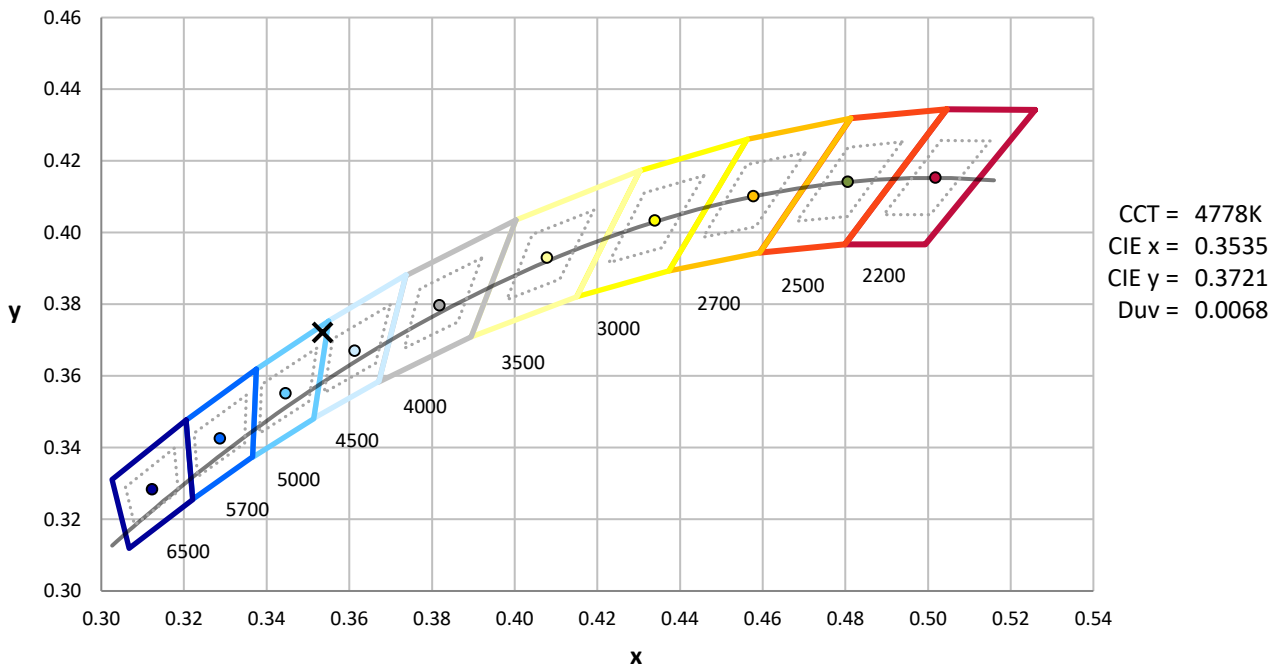
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date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

REPORT NUMBER: SP1-2006-844-1

**CIE 1931 Chromaticity Diagram**



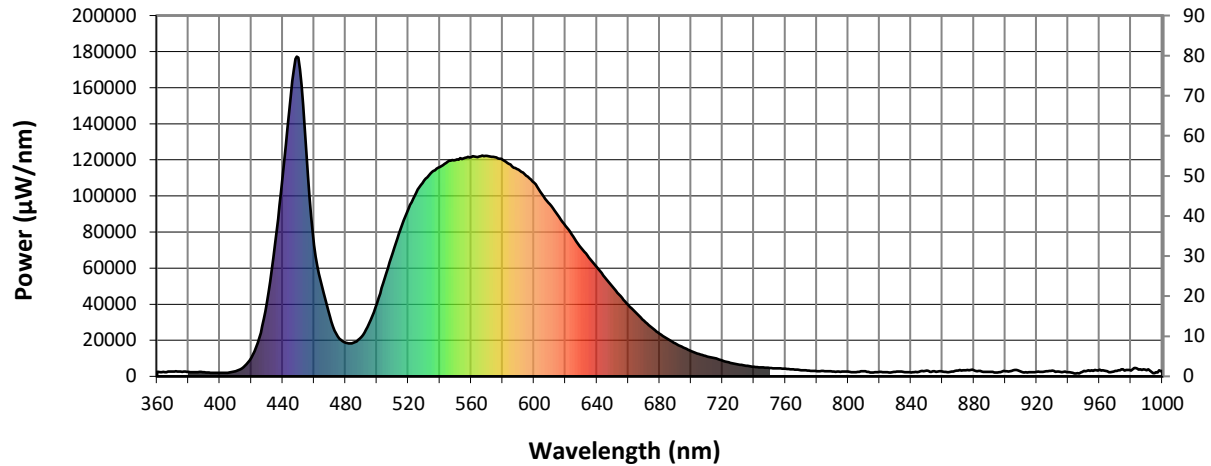
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 5000K 7-step quadrangle

REPORT NUMBER: SP1-2006-844-1

### Photopic Flux vs. Wavelength

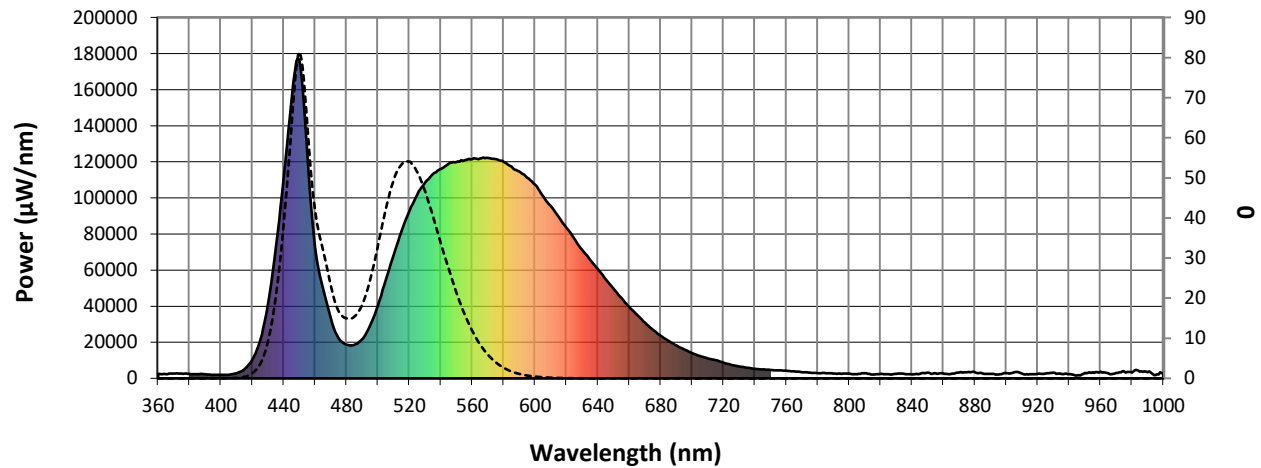


#####

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

REPORT NUMBER: SP1-2006-844-1

### Scotopic Flux vs. Wavelength



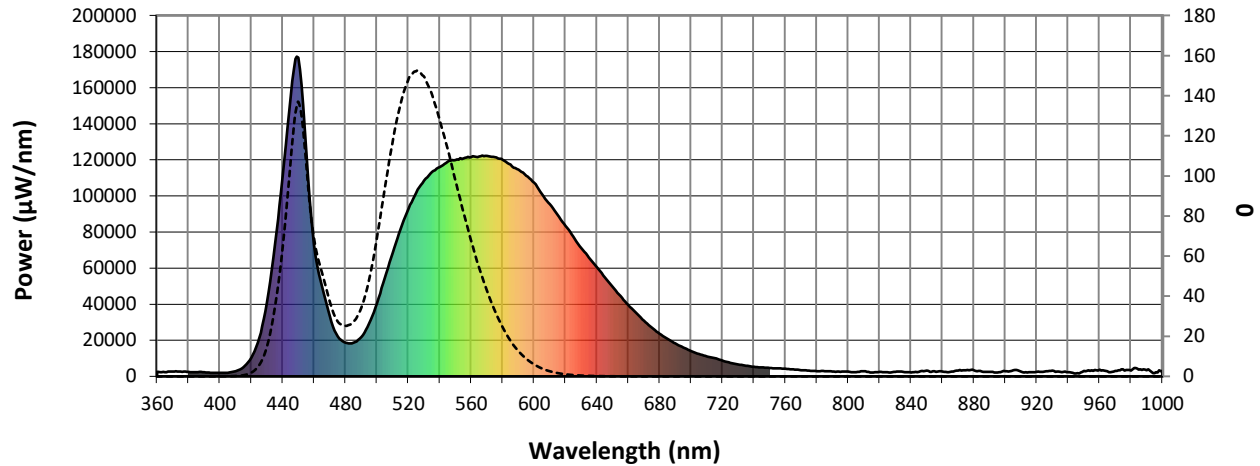
Scotopic Lumens: 4867.6

S/P: 0.66

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

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: 12457.9 S/P: 1.7

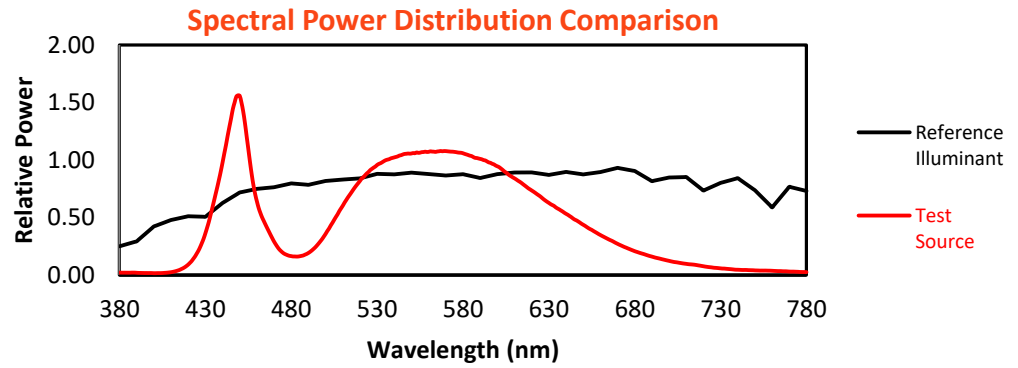
| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) |
|-----------|------------------|------------------|-----------|------------------|------------------|-----------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

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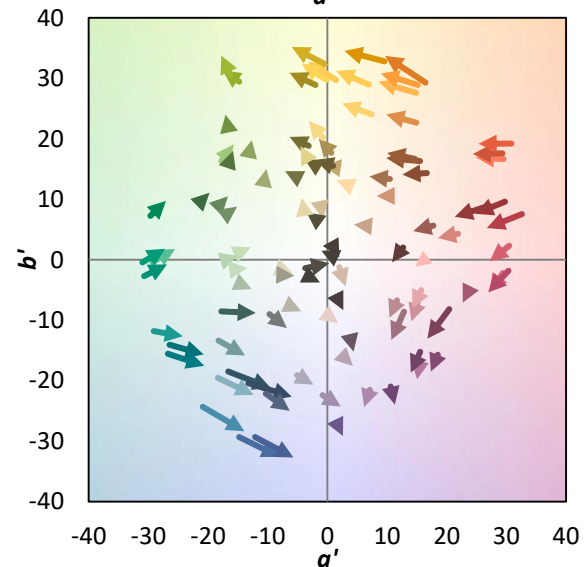
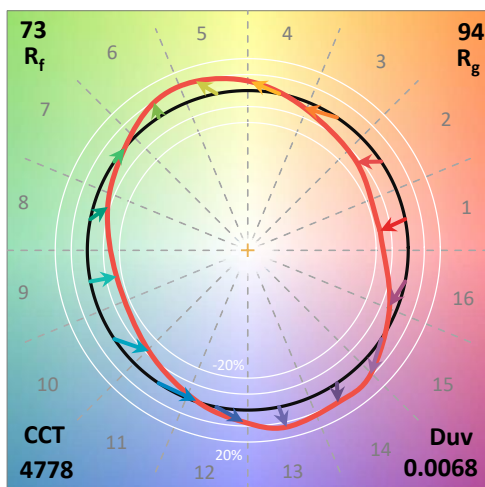
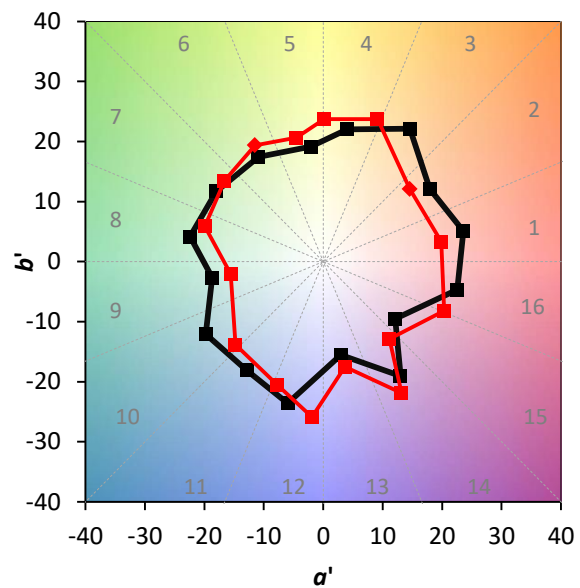
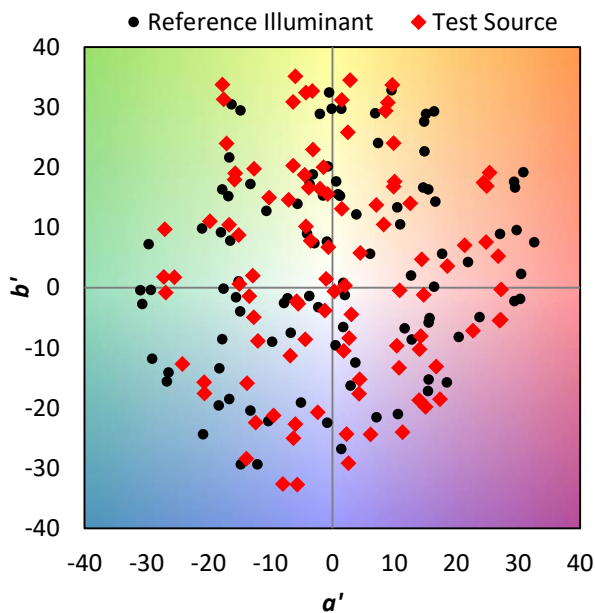
TM-30-18

### Summary

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

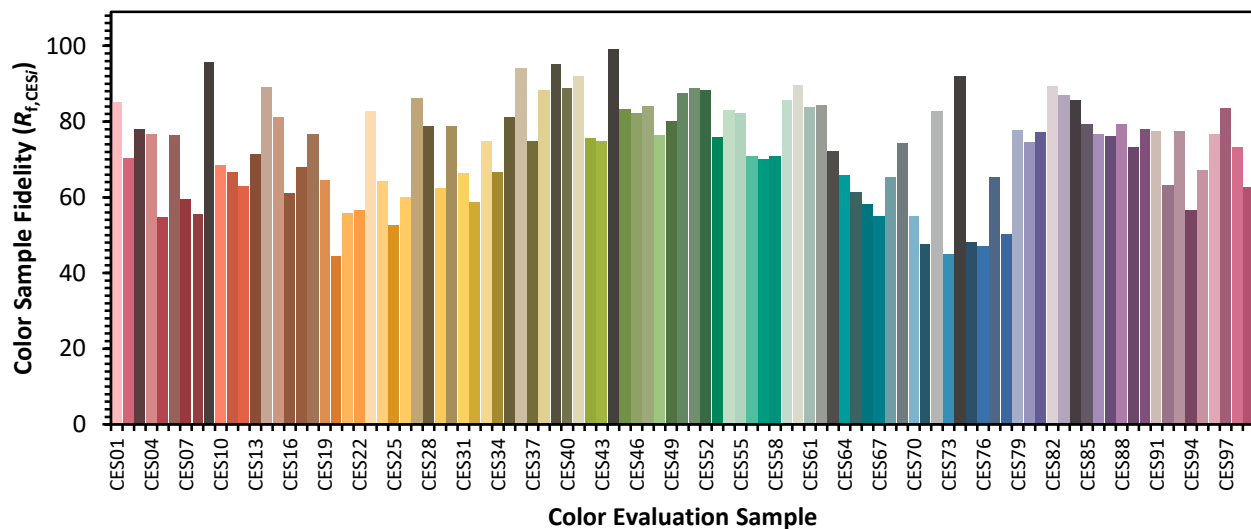


### Color Vector Graphics

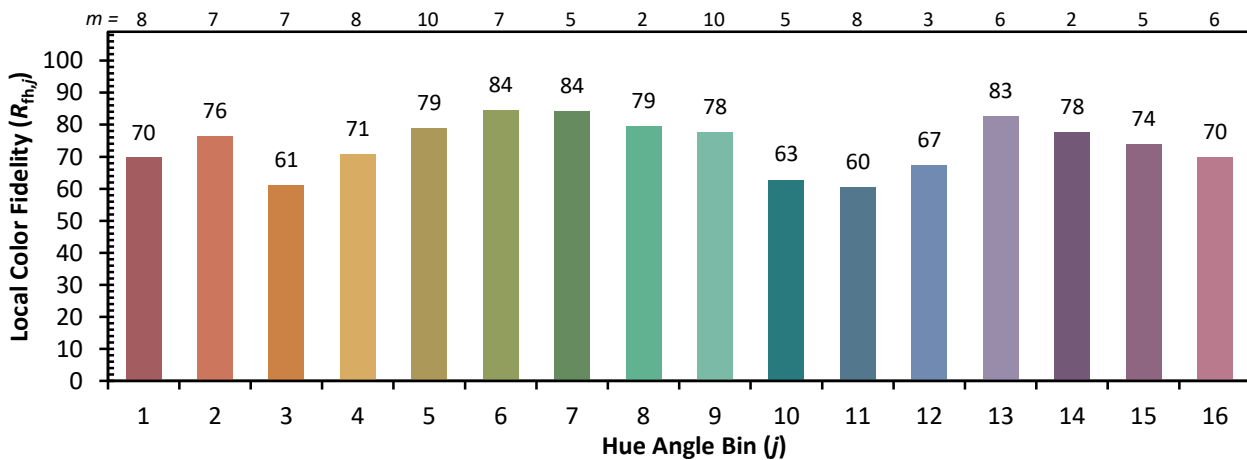
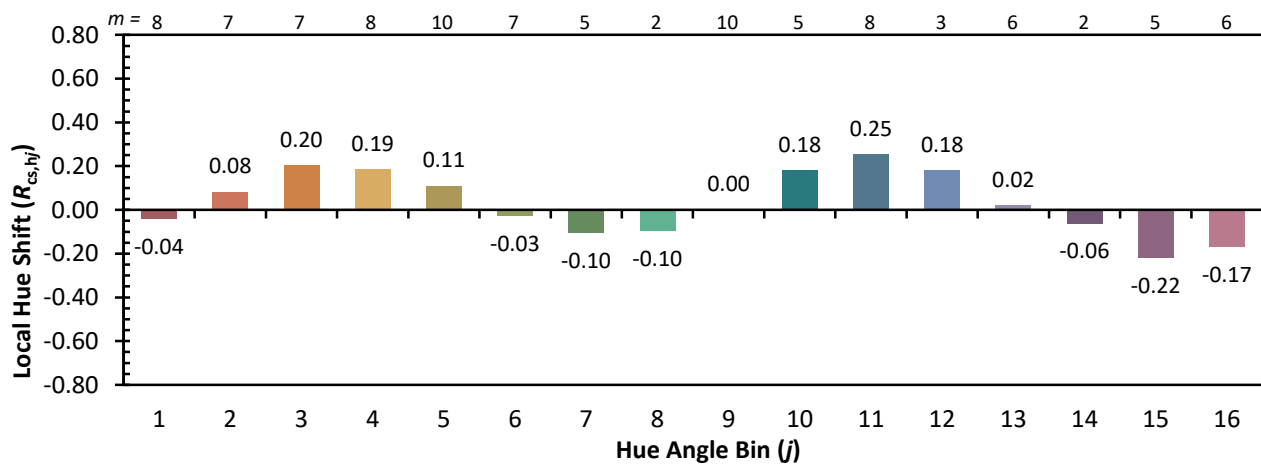
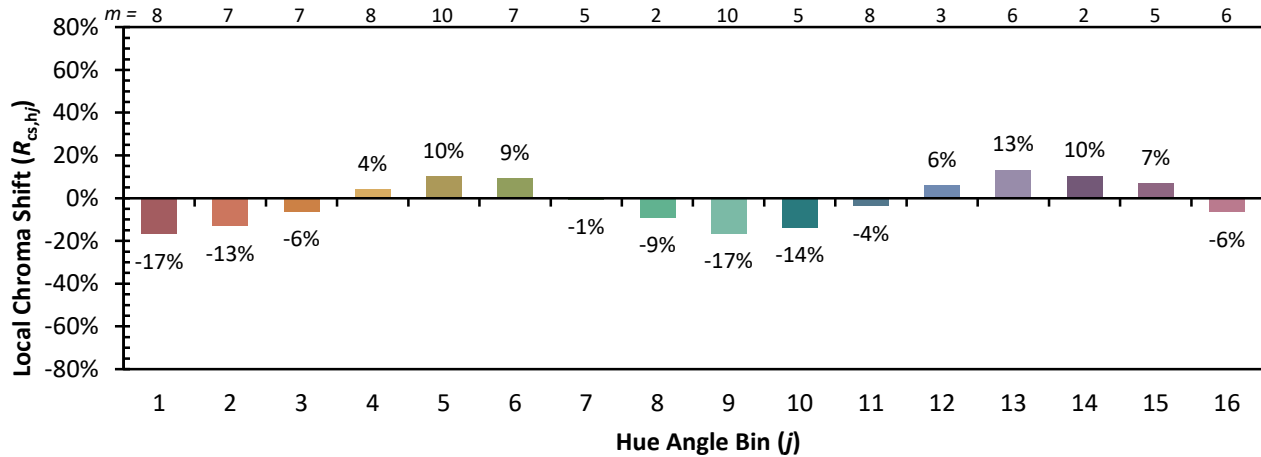


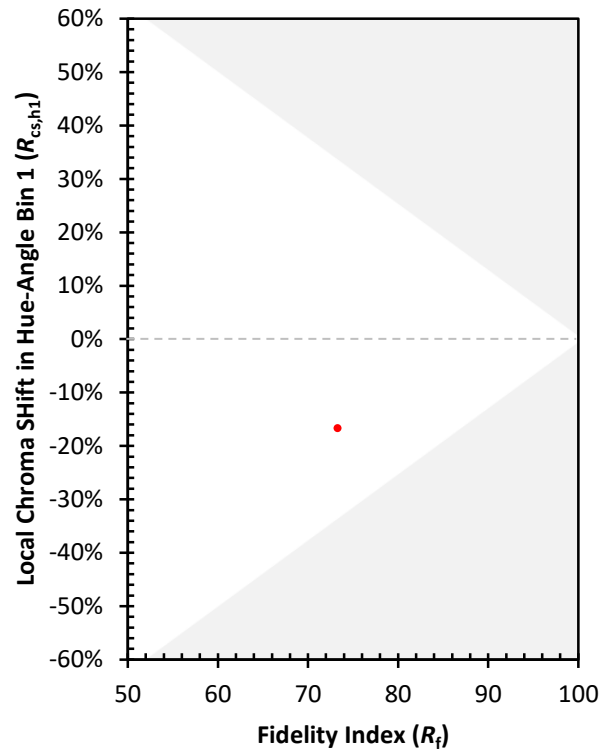
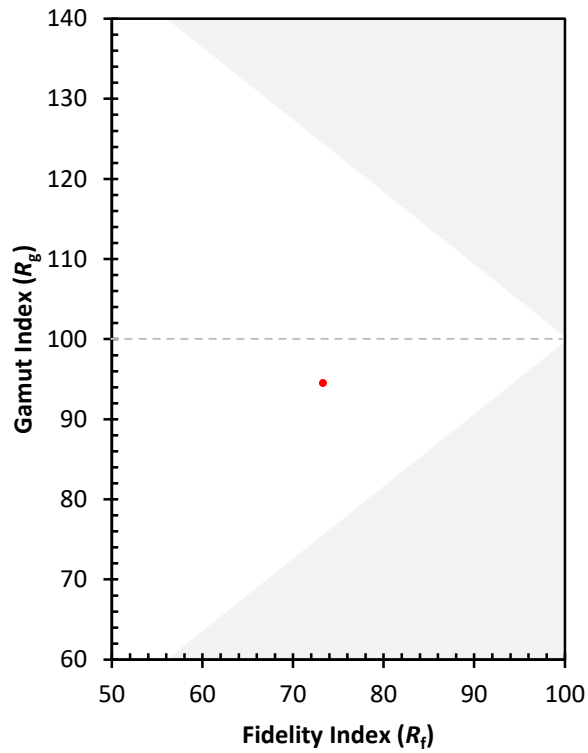
**Individual Sample Fidelity Index ( $R_{f,i}$ )**

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



Color Rendition by Hue-Angle Bin



**Measure Comparisons**


(END OF REPORT)