

Scaled data based on original data using  
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-State  
Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions

Brand: CORELITE

Report Number: P1215394

Luminaire Tested: 22-ID2-55-SWD-L835-U

Issue Date: 12/4/2025

**Test Information**

Test Method: LM-79-2019  
Report Number: P1215394  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2506-458-19)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/4/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: CORELITE  
Catalog Number: 22-ID2-55-SWD-L835-U  
Description: 2X2 IN DEPTH TROFFER WITH SWEEP DROP  
Light Source: 3500K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5963.3 lumens  
Efficiency: N/A  
Efficacy: 122.2 lumens/watt  
Spacing Criteria (0/90/45): 1.19 / 1.19 / 1.3  
Luminous Opening: Rectangular w/ Sides (W: 2' x L: 2' x H: 0.16')  
CIE Type: Direct

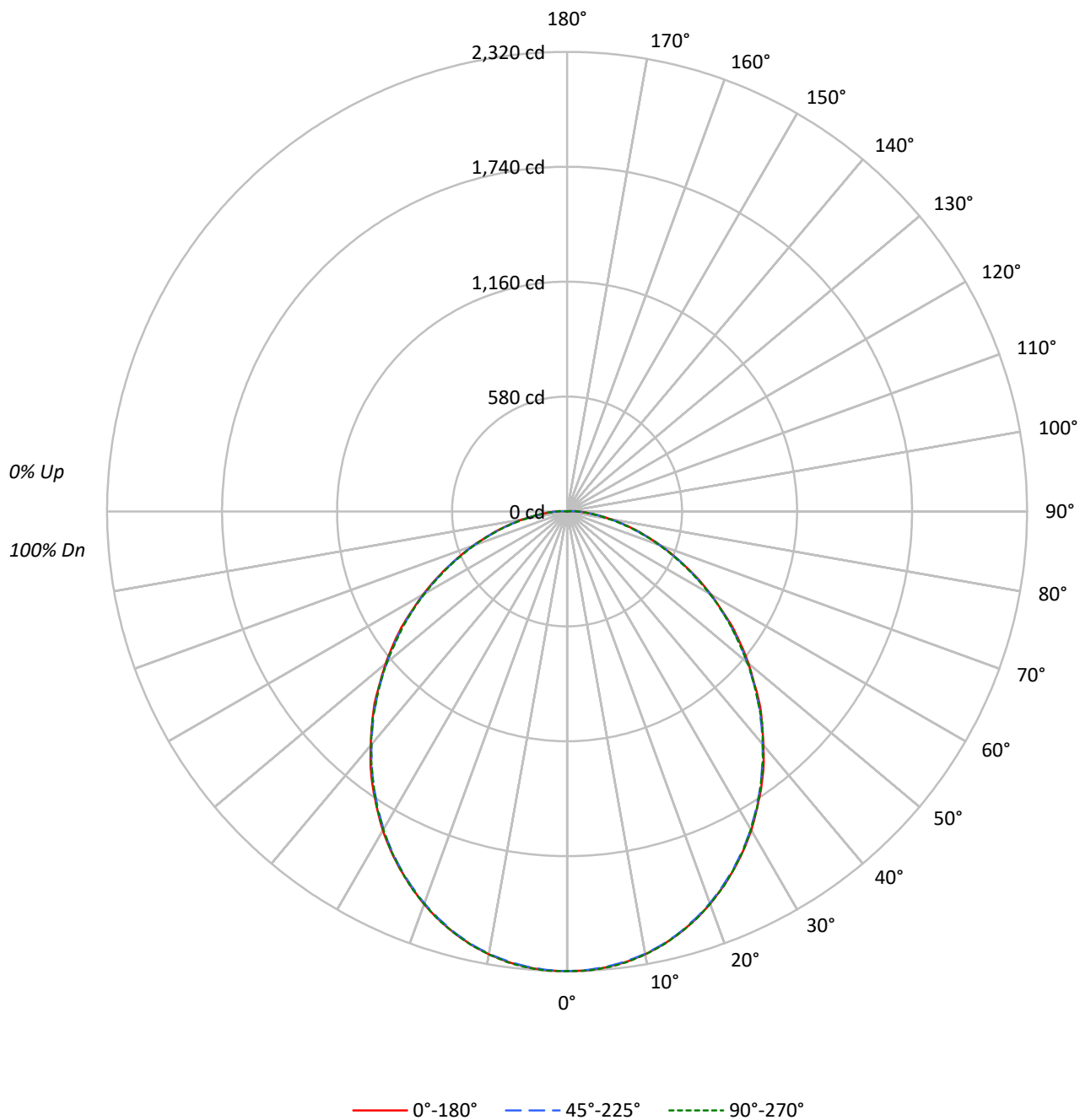
Input Watts (W): 48.8  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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### Luminous Intensity Polar Plot



TEST NUMBER: P1215394

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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

|     |     |     |     |     |     |     |     |     |     |     |     |  |     |     |     |  |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|-----|-----|-----|--|-----|
| RF  | 20  |     |     |     | 20  |     |     |     | 20  |     |     |  | 20  |     |     |  | 20  |
| RC  | 80  |     |     |     | 70  |     |     |     | 50  |     |     |  | 30  |     |     |  | 0   |
| RW  | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50  | 30  | 10  |  | 50  | 30  | 10  |  | 0   |
| RCR |     |     |     |     |     |     |     |     |     |     |     |  |     |     |     |  |     |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 |  | 106 | 106 | 106 |  | 100 |
| 1   | 109 | 104 | 100 | 96  | 106 | 102 | 98  | 94  | 97  | 94  | 91  |  | 93  | 91  | 88  |  | 84  |
| 2   | 99  | 91  | 84  | 79  | 97  | 89  | 83  | 78  | 86  | 80  | 76  |  | 82  | 78  | 74  |  | 70  |
| 3   | 91  | 80  | 72  | 66  | 88  | 79  | 71  | 65  | 76  | 69  | 64  |  | 73  | 67  | 63  |  | 60  |
| 4   | 83  | 71  | 63  | 56  | 81  | 70  | 62  | 56  | 67  | 60  | 55  |  | 65  | 59  | 54  |  | 51  |
| 5   | 77  | 64  | 55  | 49  | 75  | 63  | 55  | 48  | 61  | 53  | 48  |  | 59  | 52  | 47  |  | 45  |
| 6   | 71  | 58  | 49  | 43  | 69  | 57  | 48  | 42  | 55  | 48  | 42  |  | 53  | 47  | 42  |  | 39  |
| 7   | 66  | 52  | 44  | 38  | 64  | 52  | 43  | 38  | 50  | 43  | 37  |  | 49  | 42  | 37  |  | 35  |
| 8   | 61  | 48  | 40  | 34  | 60  | 47  | 39  | 34  | 46  | 39  | 33  |  | 45  | 38  | 33  |  | 31  |
| 9   | 57  | 44  | 36  | 31  | 56  | 44  | 36  | 30  | 42  | 35  | 30  |  | 41  | 35  | 30  |  | 28  |
| 10  | 54  | 41  | 33  | 28  | 53  | 40  | 33  | 28  | 39  | 32  | 28  |  | 38  | 32  | 27  |  | 26  |

**AVERAGE LUMINANCE (cd/sqm):**

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 6244 | 6244 | 6244 |
| 5°  | 6195 | 6169 | 6199 |
| 10° | 6116 | 6073 | 6118 |
| 15° | 6007 | 5947 | 6007 |
| 20° | 5868 | 5788 | 5866 |
| 25° | 5702 | 5606 | 5698 |
| 30° | 5520 | 5402 | 5505 |
| 35° | 5308 | 5171 | 5287 |
| 40° | 5072 | 4924 | 5055 |
| 45° | 4843 | 4663 | 4801 |
| 50° | 4566 | 4374 | 4538 |
| 55° | 4293 | 4076 | 4243 |
| 60° | 3959 | 3749 | 3921 |
| 65° | 3600 | 3382 | 3564 |
| 70° | 3238 | 2999 | 3195 |
| 75° | 2842 | 2540 | 2770 |
| 80° | 2375 | 2061 | 2272 |
| 85° | 1905 | 1570 | 1843 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 4843 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 219.1  | 3.7       |
| 10°-20°   | 620.1  | 10.4      |
| 20°-30°   | 916.0  | 15.4      |
| 30°-40°   | 1063.5 | 17.8      |
| 40°-50°   | 1052.7 | 17.7      |
| 50°-60°   | 903.3  | 15.1      |
| 60°-70°   | 656.2  | 11.0      |
| 70°-80°   | 371.6  | 6.2       |
| 80°-90°   | 134.1  | 2.2       |
| 90°-100°  | 24.1   | 0.4       |
| 100°-110° | 2.5    | 0.0       |
| 110°-120° | 0.1    | 0.0       |
| 120°-130° | 0.0    | 0.0       |
| 130°-140° | 0.0    | 0.0       |
| 140°-150° | 0.0    | 0.0       |
| 150°-160° | 0.0    | 0.0       |
| 160°-170° | 0.0    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-30°    | 1755.2 | 29.4      |
| 0°-40°    | 2818.7 | 47.3      |
| 0°-60°    | 4774.7 | 80.1      |
| 0°-90°    | 5936.6 | 99.6      |
| 90°-120°  | 26.7   | 0.4       |
| 90°-150°  | 26.7   | 0.4       |
| 90°-180°  | 27.0   | 0.5       |
| 0°-180°   | 5963.3 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 2320 | 2320  | 2320 | 2320  | 2320 |      |
| 5°   | 2309 | 2307  | 2306 | 2309  | 2311 | 219  |
| 15°  | 2202 | 2199  | 2199 | 2202  | 2202 | 621  |
| 25°  | 1992 | 1992  | 1988 | 1989  | 1991 | 917  |
| 35°  | 1706 | 1701  | 1699 | 1700  | 1700 | 1066 |
| 45°  | 1374 | 1367  | 1364 | 1361  | 1362 | 1057 |
| 55°  | 1020 | 1014  | 1009 | 1005  | 1008 | 908  |
| 65°  | 662  | 665   | 660  | 659   | 656  | 659  |
| 75°  | 355  | 351   | 348  | 344   | 346  | 376  |
| 85°  | 118  | 117   | 117  | 114   | 114  | 118  |
| 90°  | 53   | 51    | 50   | 50    | 52   | 30   |
| 95°  | 21   | 18    | 16   | 17    | 19   | 15   |
| 105° | 3    | 2     | 1    | 2     | 2    | 4    |
| 115° | 0    | 0     | 0    | 0     | 0    | 0    |
| 125° | 0    | 0     | 0    | 0     | 0    | 0    |
| 135° | 0    | 0     | 0    | 0     | 0    | 0    |
| 145° | 0    | 0     | 0    | 0     | 0    | 0    |
| 155° | 0    | 0     | 0    | 0     | 0    | 0    |
| 165° | 0    | 0     | 0    | 0     | 0    | 0    |
| 175° | 0    | 0     | 0    | 0     | 0    | 0    |
| 180° | 0    | 0     | 0    | 0     | 0    | 0    |

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 2320.4 | 2320.4 | 2320.4 | 2320.4 | 2320.4 |
| 2.5°   | 2318.9 | 2316.7 | 2316.7 | 2318.2 | 2320.4 |
| 5°     | 2309.3 | 2307.0 | 2306.3 | 2309.3 | 2310.8 |
| 7.5°   | 2292.9 | 2291.4 | 2290.0 | 2292.2 | 2295.2 |
| 10°    | 2269.9 | 2268.4 | 2266.9 | 2269.9 | 2270.7 |
| 12.5°  | 2239.5 | 2238.0 | 2237.2 | 2238.0 | 2241.0 |
| 15°    | 2202.3 | 2198.6 | 2199.4 | 2201.6 | 2202.3 |
| 17.5°  | 2158.5 | 2156.3 | 2154.8 | 2157.8 | 2160.0 |
| 20°    | 2108.8 | 2106.6 | 2104.3 | 2106.6 | 2108.0 |
| 22.5°  | 2052.4 | 2050.1 | 2048.6 | 2050.9 | 2053.8 |
| 25°    | 1992.2 | 1991.5 | 1987.8 | 1989.2 | 1990.7 |
| 27.5°  | 1927.6 | 1925.4 | 1922.4 | 1923.9 | 1926.1 |
| 30°    | 1858.6 | 1854.1 | 1851.9 | 1853.4 | 1853.4 |
| 32.5°  | 1781.3 | 1780.6 | 1775.4 | 1782.1 | 1781.3 |
| 35°    | 1706.3 | 1701.1 | 1698.9 | 1700.4 | 1699.7 |
| 37.5°  | 1627.6 | 1619.5 | 1617.2 | 1621.7 | 1620.2 |
| 40°    | 1540.8 | 1538.5 | 1534.8 | 1536.3 | 1535.6 |
| 42.5°  | 1456.1 | 1453.9 | 1449.4 | 1447.9 | 1456.1 |
| 45°    | 1374.4 | 1367.0 | 1364.0 | 1361.1 | 1362.5 |
| 47.5°  | 1278.6 | 1280.1 | 1274.9 | 1274.2 | 1275.7 |
| 50°    | 1194.7 | 1191.0 | 1185.8 | 1185.1 | 1187.3 |
| 52.5°  | 1105.6 | 1102.7 | 1097.5 | 1095.2 | 1093.0 |
| 55°    | 1019.5 | 1013.6 | 1009.1 | 1004.6 | 1007.6 |
| 57.5°  | 923.0  | 925.9  | 920.0  | 918.5  | 919.3  |
| 60°    | 837.6  | 835.3  | 833.1  | 830.1  | 829.4  |
| 62.5°  | 751.4  | 750.7  | 744.8  | 744.8  | 741.8  |
| 65°    | 662.3  | 664.6  | 660.1  | 659.4  | 655.7  |
| 67.5°  | 580.7  | 582.1  | 580.7  | 577.7  | 572.5  |
| 70°    | 502.0  | 500.5  | 499.7  | 496.8  | 495.3  |
| 72.5°  | 424.0  | 422.5  | 421.8  | 421.0  | 420.3  |
| 75°    | 354.9  | 351.2  | 347.5  | 344.5  | 346.0  |
| 77.5°  | 283.6  | 281.4  | 282.2  | 278.4  | 276.2  |
| 80°    | 222.8  | 218.3  | 218.3  | 216.1  | 213.1  |
| 82.5°  | 163.4  | 164.1  | 161.9  | 161.9  | 160.4  |
| 85°    | 118.1  | 116.6  | 116.6  | 114.3  | 114.3  |
| 87.5°  | 81.7   | 80.2   | 79.5   | 80.2   | 77.2   |
| 90°    | 52.7   | 51.2   | 50.5   | 50.5   | 52.0   |
| 92.5°  | 33.4   | 31.9   | 30.4   | 31.2   | 31.9   |
| 95°    | 20.8   | 17.8   | 16.3   | 17.1   | 19.3   |
| 97.5°  | 12.6   | 10.4   | 8.9    | 9.7    | 11.1   |
| 100°   | 8.2    | 6.7    | 3.7    | 5.9    | 7.4    |
| 102.5° | 5.2    | 3.7    | 1.5    | 3.7    | 4.5    |
| 105°   | 3.0    | 2.2    | 0.7    | 1.5    | 2.2    |
| 107.5° | 1.5    | 0.7    | 0.7    | 0.7    | 1.5    |
| 110°   | 0.7    | 0.7    | 0.7    | 0.7    | 0.7    |

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**CANDELA DISTRIBUTION (continued):**

|        | 0°  | 22.5° | 45° | 67.5° | 90° |
|--------|-----|-------|-----|-------|-----|
| 112.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 115°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 117.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 120°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 122.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 125°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 127.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 130°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 132.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 135°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 137.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 140°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 142.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 145°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 147.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 150°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 152.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 155°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 157.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 160°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 162.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 165°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 167.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 170°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 172.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 175°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 177.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 180°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |

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CATALOG NUMBER: 22-ID2-55-SWD-L835-U

**CIE UGR TABLE:**

| Reflectances:   |      |                  |       |       |       |       |                |       |       |       |       |
|-----------------|------|------------------|-------|-------|-------|-------|----------------|-------|-------|-------|-------|
| Ceiling         |      | 0.7              | 0.7   | 0.5   | 0.5   | 0.3   | 0.7            | 0.7   | 0.5   | 0.5   | 0.3   |
| Wall            |      | 0.5              | 0.3   | 0.5   | 0.3   | 0.3   | 0.5            | 0.3   | 0.5   | 0.3   | 0.3   |
| Reference plane |      | 0.2              | 0.2   | 0.2   | 0.2   | 0.2   | 0.2            | 0.2   | 0.2   | 0.2   | 0.2   |
| Room dimensions |      | Viewed crosswise |       |       |       |       | Viewed endwise |       |       |       |       |
| X=2H            | Y=2H | 16.78            | 18.38 | 17.15 | 18.70 | 19.03 | 16.73          | 18.33 | 17.10 | 18.65 | 18.98 |
|                 | 3H   | 18.36            | 19.81 | 18.75 | 20.14 | 20.51 | 18.30          | 19.75 | 18.69 | 20.08 | 20.45 |
|                 | 4H   | 18.94            | 20.29 | 19.34 | 20.65 | 21.04 | 18.87          | 20.22 | 19.27 | 20.58 | 20.97 |
|                 | 6H   | 19.35            | 20.61 | 19.77 | 20.98 | 21.38 | 19.26          | 20.52 | 19.68 | 20.90 | 21.30 |
|                 | 8H   | 19.48            | 20.68 | 19.91 | 21.08 | 21.49 | 19.39          | 20.60 | 19.83 | 20.99 | 21.40 |
|                 | 12H  | 19.58            | 20.73 | 20.02 | 21.12 | 21.56 | 19.49          | 20.64 | 19.93 | 21.03 | 21.47 |
| 4H              | 2H   | 17.31            | 18.67 | 17.72 | 19.03 | 19.41 | 17.27          | 18.63 | 17.68 | 18.99 | 19.37 |
|                 | 3H   | 19.10            | 20.24 | 19.52 | 20.65 | 21.06 | 19.05          | 20.19 | 19.47 | 20.60 | 21.01 |
|                 | 4H   | 19.79            | 20.82 | 20.23 | 21.24 | 21.69 | 19.73          | 20.76 | 20.17 | 21.18 | 21.63 |
|                 | 6H   | 20.32            | 21.22 | 20.78 | 21.67 | 22.14 | 20.24          | 21.14 | 20.70 | 21.59 | 22.06 |
|                 | 8H   | 20.50            | 21.34 | 20.97 | 21.79 | 22.27 | 20.42          | 21.26 | 20.88 | 21.71 | 22.19 |
|                 | 12H  | 20.64            | 21.40 | 21.13 | 21.88 | 22.36 | 20.56          | 21.31 | 21.04 | 21.80 | 22.28 |
| 8H              | 4H   | 20.03            | 20.88 | 20.50 | 21.33 | 21.80 | 19.98          | 20.82 | 20.44 | 21.27 | 21.75 |
|                 | 6H   | 20.66            | 21.37 | 21.17 | 21.86 | 22.35 | 20.59          | 21.30 | 21.10 | 21.79 | 22.28 |
|                 | 8H   | 20.91            | 21.54 | 21.43 | 22.05 | 22.55 | 20.83          | 21.46 | 21.35 | 21.98 | 22.48 |
|                 | 12H  | 21.12            | 21.68 | 21.64 | 22.18 | 22.75 | 21.04          | 21.60 | 21.56 | 22.10 | 22.67 |
| 12H             | 4H   | 20.05            | 20.81 | 20.54 | 21.29 | 21.77 | 20.00          | 20.75 | 20.48 | 21.24 | 21.72 |
|                 | 6H   | 20.70            | 21.33 | 21.22 | 21.85 | 22.34 | 20.63          | 21.27 | 21.15 | 21.78 | 22.28 |
|                 | 8H   | 21.00            | 21.56 | 21.51 | 22.06 | 22.63 | 20.93          | 21.48 | 21.44 | 21.98 | 22.55 |



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

Report Prepared for

Cooper Lighting Solutions

Corelite

Report Number: SP1-2506-458-1

Test Date: 07/23/2025

Luminaire Tested: 22ID2-55-CFR1-L835-U

Data in this report applies to families of products including 22ID2-55-CFR1-L835-U

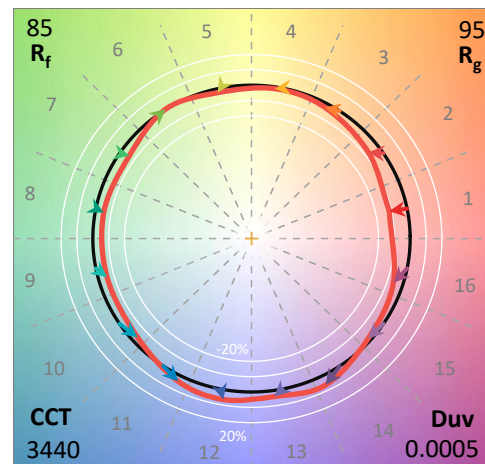
### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2506-458-1  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 08/27/2025  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: Corelite  
 Catalog Number: **22ID2-55-CFR1-L835-U**  
 Description: 2X2 CGTX WITH INDEPTH FRAME AND CFR1 LENS - 5500 LUMEN 3500K 80CRI

### Spectral Parameters

CCT (K): 3440  
 CIE  $u'$ : 0.2370  
 CIE  $v'$ : 0.5132  
 Duv: 0.0005  
 CIE x: 0.4093  
 CIE y: 0.3940  
 CIE z: 0.1967  
 Peak Wavelength (nm): 599  
 Dominant Wavelength (nm): 580  
 Purity: 41.09375  
 R<sub>f</sub>: 84.9  
 R<sub>g</sub>: 94.6

CRI (Ra): 84.2  
 R1: 82.8  
 R2: 91.7  
 R3: 96.7  
 R4: 81.9  
 R5: 82.6  
 R6: 88.8  
 R7: 85.0  
 R8: 63.7  
 R9: 13.6  
 R10: 80.1  
 R11: 81.1  
 R12: 65.8  
 R13: 85.2  
 R14: 98.7  
 R15: 76.2



### Test Conditions

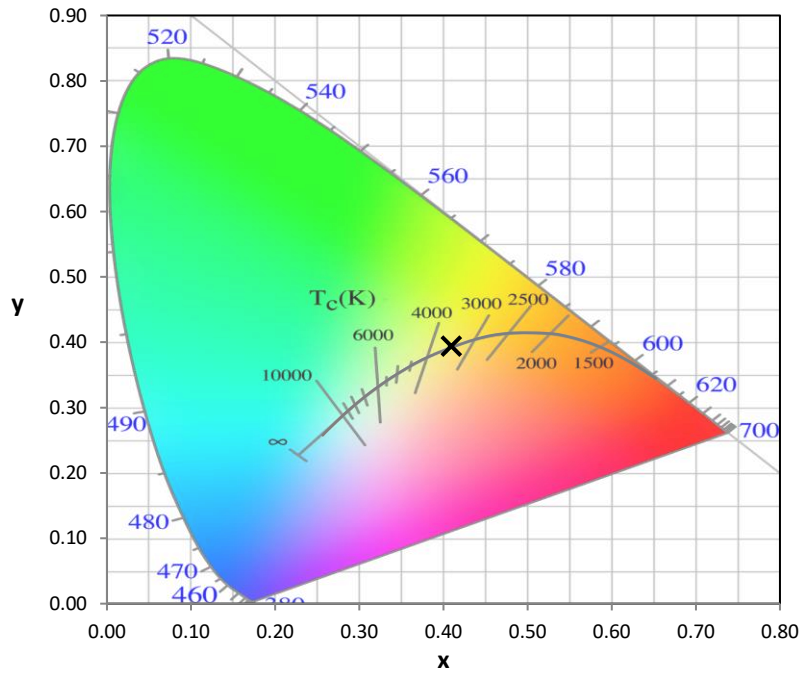
Stabilization Time: 36M  
 Operation Time: 1H 36M  
 Sphere Temperature (°C): 24.0

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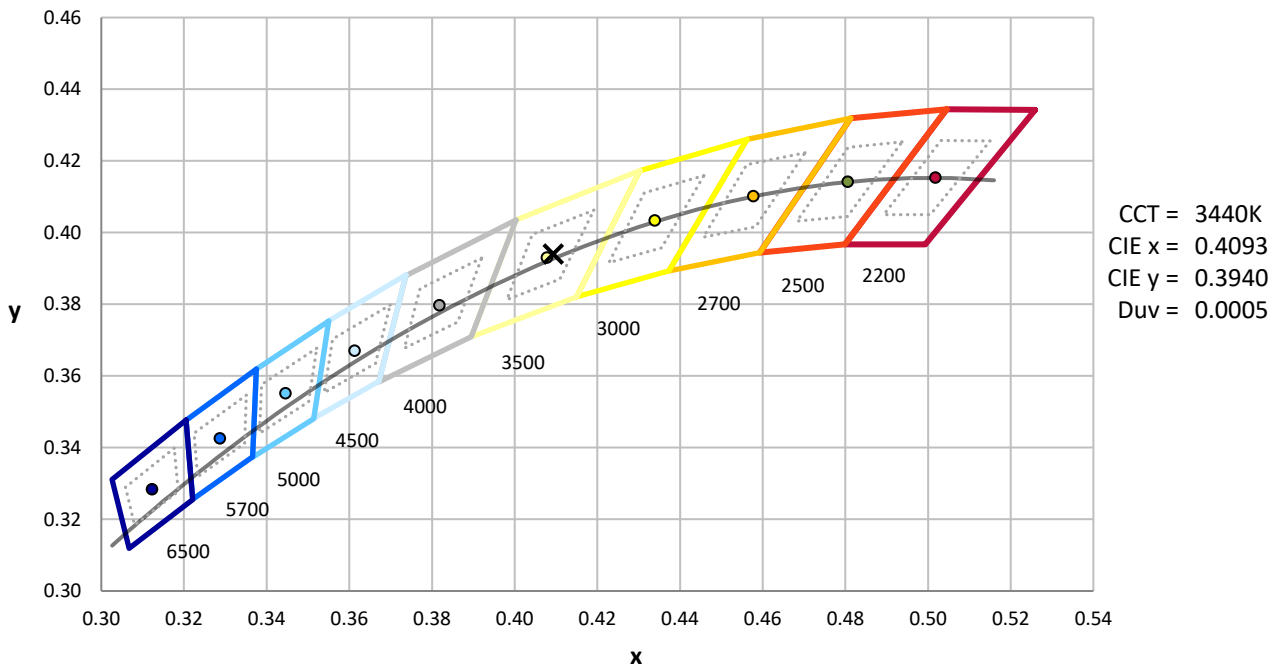
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | 76INCH SPHERE IN0058  | 6/16/2025        | 12/16/2025           |
| Power Meter                    | XITRON INXT2011004    | 1/21/2025        | 1/21/2026            |
| AC Power Source                | CHROMA 61603 IN0063   | 10/22/2024       | 10/22/2025           |
| DC Power Source                | AGILENT E3634A IN0208 | 10/22/2024       | 10/22/2025           |
| Sphere Thermometer             | ONSET IN0085          | 10/22/2024       | 10/22/2025           |
| Room Thermometer               | ONSET IN0046          | 10/22/2024       | 10/22/2025           |

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**CIE 1931 Chromaticity Diagram**



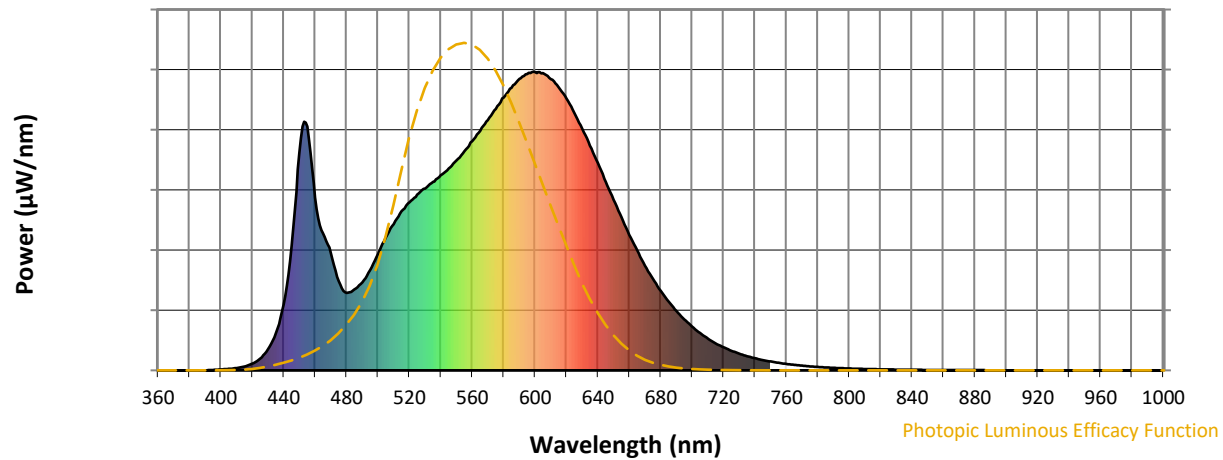
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 3500K 4-step quadrangle

REPORT NUMBER: SP1-2506-458-1

### Photopic Flux vs. Wavelength

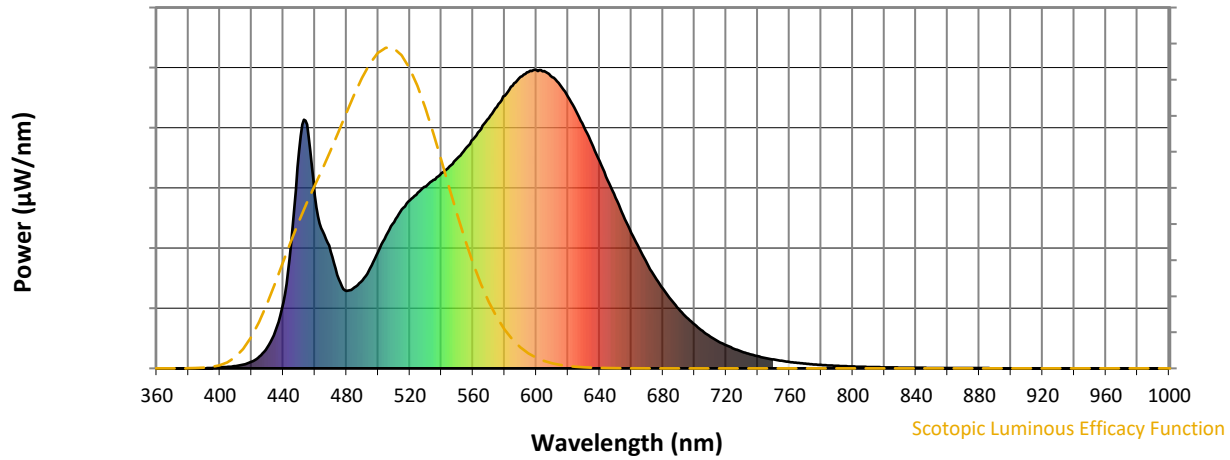


### Photopic Lumens: NR

| $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|
| 360               | 0                             | NR                             | 490               | 295                           | NR                             | 620               | 910                           | NR                             | 750               | 30                            | NR                             | 880               | 1                             | NR                             |
| 365               | 0                             | NR                             | 495               | 335                           | NR                             | 625               | 862                           | NR                             | 755               | 25                            | NR                             | 885               | 1                             | NR                             |
| 370               | 0                             | NR                             | 500               | 390                           | NR                             | 630               | 809                           | NR                             | 760               | 21                            | NR                             | 890               | 1                             | NR                             |
| 375               | 0                             | NR                             | 505               | 445                           | NR                             | 635               | 752                           | NR                             | 765               | 18                            | NR                             | 895               | 0                             | NR                             |
| 380               | 0                             | NR                             | 510               | 490                           | NR                             | 640               | 694                           | NR                             | 770               | 16                            | NR                             | 900               | 0                             | NR                             |
| 385               | 0                             | NR                             | 515               | 532                           | NR                             | 645               | 630                           | NR                             | 775               | 13                            | NR                             | 905               | 0                             | NR                             |
| 390               | 0                             | NR                             | 520               | 563                           | NR                             | 650               | 571                           | NR                             | 780               | 12                            | NR                             | 910               | 0                             | NR                             |
| 395               | 2                             | NR                             | 525               | 588                           | NR                             | 655               | 512                           | NR                             | 785               | 10                            | NR                             | 915               | 0                             | NR                             |
| 400               | 3                             | NR                             | 530               | 609                           | NR                             | 660               | 453                           | NR                             | 790               | 8                             | NR                             | 920               | 0                             | NR                             |
| 405               | 5                             | NR                             | 535               | 631                           | NR                             | 665               | 401                           | NR                             | 795               | 7                             | NR                             | 925               | 0                             | NR                             |
| 410               | 8                             | NR                             | 540               | 654                           | NR                             | 670               | 351                           | NR                             | 800               | 6                             | NR                             | 930               | 0                             | NR                             |
| 415               | 13                            | NR                             | 545               | 677                           | NR                             | 675               | 306                           | NR                             | 805               | 5                             | NR                             | 935               | 0                             | NR                             |
| 420               | 23                            | NR                             | 550               | 702                           | NR                             | 680               | 267                           | NR                             | 810               | 5                             | NR                             | 940               | 0                             | NR                             |
| 425               | 40                            | NR                             | 555               | 734                           | NR                             | 685               | 230                           | NR                             | 815               | 4                             | NR                             | 945               | 0                             | NR                             |
| 430               | 70                            | NR                             | 560               | 767                           | NR                             | 690               | 199                           | NR                             | 820               | 4                             | NR                             | 950               | 0                             | NR                             |
| 435               | 126                           | NR                             | 565               | 802                           | NR                             | 695               | 171                           | NR                             | 825               | 3                             | NR                             | 955               | 0                             | NR                             |
| 440               | 221                           | NR                             | 570               | 838                           | NR                             | 700               | 146                           | NR                             | 830               | 3                             | NR                             | 960               | 0                             | NR                             |
| 445               | 418                           | NR                             | 575               | 875                           | NR                             | 705               | 125                           | NR                             | 835               | 2                             | NR                             | 965               | 0                             | NR                             |
| 450               | 729                           | NR                             | 580               | 913                           | NR                             | 710               | 107                           | NR                             | 840               | 2                             | NR                             | 970               | 0                             | NR                             |
| 455               | 816                           | NR                             | 585               | 946                           | NR                             | 715               | 90                            | NR                             | 845               | 2                             | NR                             | 975               | 0                             | NR                             |
| 460               | 578                           | NR                             | 590               | 976                           | NR                             | 720               | 77                            | NR                             | 850               | 1                             | NR                             | 980               | 0                             | NR                             |
| 465               | 458                           | NR                             | 595               | 992                           | NR                             | 725               | 66                            | NR                             | 855               | 1                             | NR                             | 985               | 0                             | NR                             |
| 470               | 390                           | NR                             | 600               | 999                           | NR                             | 730               | 56                            | NR                             | 860               | 1                             | NR                             | 990               | 0                             | NR                             |
| 475               | 299                           | NR                             | 605               | 995                           | NR                             | 735               | 47                            | NR                             | 865               | 1                             | NR                             | 995               | 0                             | NR                             |
| 480               | 260                           | NR                             | 610               | 975                           | NR                             | 740               | 40                            | NR                             | 870               | 1                             | NR                             | 1000              | 0                             | NR                             |
| 485               | 271                           | NR                             | 615               | 948                           | NR                             | 745               | 34                            | NR                             | 875               | 1                             | NR                             |                   |                               |                                |

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### Scotopic Flux vs. Wavelength



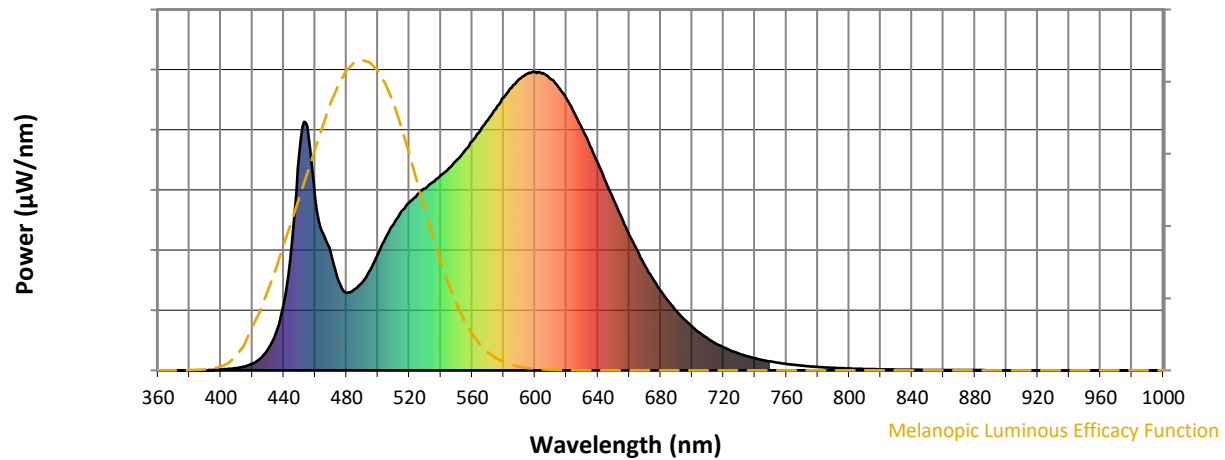
Scotopic Lumens: NR

S/P: 1.53

| 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    | 295                      | NR            | 620    | 910                      | NR            | 750    | 30                       | NR            | 880    | 1                        | NR            |
| 365    | 0                        | NR            | 495    | 335                      | NR            | 625    | 862                      | NR            | 755    | 25                       | NR            | 885    | 1                        | NR            |
| 370    | 0                        | NR            | 500    | 390                      | NR            | 630    | 809                      | NR            | 760    | 21                       | NR            | 890    | 1                        | NR            |
| 375    | 0                        | NR            | 505    | 445                      | NR            | 635    | 752                      | NR            | 765    | 18                       | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 490                      | NR            | 640    | 694                      | NR            | 770    | 16                       | NR            | 900    | 0                        | NR            |
| 385    | 0                        | NR            | 515    | 532                      | NR            | 645    | 630                      | NR            | 775    | 13                       | NR            | 905    | 0                        | NR            |
| 390    | 0                        | NR            | 520    | 563                      | NR            | 650    | 571                      | NR            | 780    | 12                       | NR            | 910    | 0                        | NR            |
| 395    | 2                        | NR            | 525    | 588                      | NR            | 655    | 512                      | NR            | 785    | 10                       | NR            | 915    | 0                        | NR            |
| 400    | 3                        | NR            | 530    | 609                      | NR            | 660    | 453                      | NR            | 790    | 8                        | NR            | 920    | 0                        | NR            |
| 405    | 5                        | NR            | 535    | 631                      | NR            | 665    | 401                      | NR            | 795    | 7                        | NR            | 925    | 0                        | NR            |
| 410    | 8                        | NR            | 540    | 654                      | NR            | 670    | 351                      | NR            | 800    | 6                        | NR            | 930    | 0                        | NR            |
| 415    | 13                       | NR            | 545    | 677                      | NR            | 675    | 306                      | NR            | 805    | 5                        | NR            | 935    | 0                        | NR            |
| 420    | 23                       | NR            | 550    | 702                      | NR            | 680    | 267                      | NR            | 810    | 5                        | NR            | 940    | 0                        | NR            |
| 425    | 40                       | NR            | 555    | 734                      | NR            | 685    | 230                      | NR            | 815    | 4                        | NR            | 945    | 0                        | NR            |
| 430    | 70                       | NR            | 560    | 767                      | NR            | 690    | 199                      | NR            | 820    | 4                        | NR            | 950    | 0                        | NR            |
| 435    | 126                      | NR            | 565    | 802                      | NR            | 695    | 171                      | NR            | 825    | 3                        | NR            | 955    | 0                        | NR            |
| 440    | 221                      | NR            | 570    | 838                      | NR            | 700    | 146                      | NR            | 830    | 3                        | NR            | 960    | 0                        | NR            |
| 445    | 418                      | NR            | 575    | 875                      | NR            | 705    | 125                      | NR            | 835    | 2                        | NR            | 965    | 0                        | NR            |
| 450    | 729                      | NR            | 580    | 913                      | NR            | 710    | 107                      | NR            | 840    | 2                        | NR            | 970    | 0                        | NR            |
| 455    | 816                      | NR            | 585    | 946                      | NR            | 715    | 90                       | NR            | 845    | 2                        | NR            | 975    | 0                        | NR            |
| 460    | 578                      | NR            | 590    | 976                      | NR            | 720    | 77                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 458                      | NR            | 595    | 992                      | NR            | 725    | 66                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 390                      | NR            | 600    | 999                      | NR            | 730    | 56                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 299                      | NR            | 605    | 995                      | NR            | 735    | 47                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 260                      | NR            | 610    | 975                      | NR            | 740    | 40                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 271                      | NR            | 615    | 948                      | NR            | 745    | 34                       | NR            | 875    | 1                        | NR            |        |                          |               |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.07

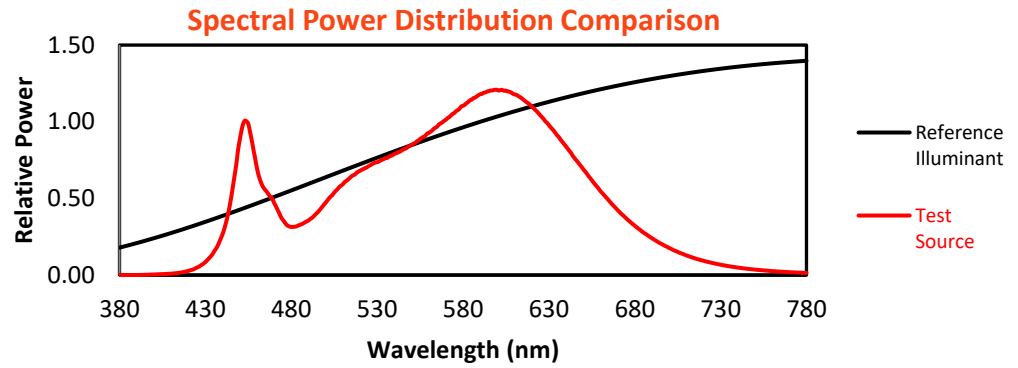
| $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | 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               | 295                                    | NR                             | 620               | 910                                    | NR                             | 750               | 30                                     | NR                             | 880               | 1                                      | NR                             |
| 365               | 0                                      | NR                             | 495               | 335                                    | NR                             | 625               | 862                                    | NR                             | 755               | 25                                     | NR                             | 885               | 1                                      | NR                             |
| 370               | 0                                      | NR                             | 500               | 390                                    | NR                             | 630               | 809                                    | NR                             | 760               | 21                                     | NR                             | 890               | 1                                      | NR                             |
| 375               | 0                                      | NR                             | 505               | 445                                    | NR                             | 635               | 752                                    | NR                             | 765               | 18                                     | NR                             | 895               | 0                                      | NR                             |
| 380               | 0                                      | NR                             | 510               | 490                                    | NR                             | 640               | 694                                    | NR                             | 770               | 16                                     | NR                             | 900               | 0                                      | NR                             |
| 385               | 0                                      | NR                             | 515               | 532                                    | NR                             | 645               | 630                                    | NR                             | 775               | 13                                     | NR                             | 905               | 0                                      | NR                             |
| 390               | 0                                      | NR                             | 520               | 563                                    | NR                             | 650               | 571                                    | NR                             | 780               | 12                                     | NR                             | 910               | 0                                      | NR                             |
| 395               | 2                                      | NR                             | 525               | 588                                    | NR                             | 655               | 512                                    | NR                             | 785               | 10                                     | NR                             | 915               | 0                                      | NR                             |
| 400               | 3                                      | NR                             | 530               | 609                                    | NR                             | 660               | 453                                    | NR                             | 790               | 8                                      | NR                             | 920               | 0                                      | NR                             |
| 405               | 5                                      | NR                             | 535               | 631                                    | NR                             | 665               | 401                                    | NR                             | 795               | 7                                      | NR                             | 925               | 0                                      | NR                             |
| 410               | 8                                      | NR                             | 540               | 654                                    | NR                             | 670               | 351                                    | NR                             | 800               | 6                                      | NR                             | 930               | 0                                      | NR                             |
| 415               | 13                                     | NR                             | 545               | 677                                    | NR                             | 675               | 306                                    | NR                             | 805               | 5                                      | NR                             | 935               | 0                                      | NR                             |
| 420               | 23                                     | NR                             | 550               | 702                                    | NR                             | 680               | 267                                    | NR                             | 810               | 5                                      | NR                             | 940               | 0                                      | NR                             |
| 425               | 40                                     | NR                             | 555               | 734                                    | NR                             | 685               | 230                                    | NR                             | 815               | 4                                      | NR                             | 945               | 0                                      | NR                             |
| 430               | 70                                     | NR                             | 560               | 767                                    | NR                             | 690               | 199                                    | NR                             | 820               | 4                                      | NR                             | 950               | 0                                      | NR                             |
| 435               | 126                                    | NR                             | 565               | 802                                    | NR                             | 695               | 171                                    | NR                             | 825               | 3                                      | NR                             | 955               | 0                                      | NR                             |
| 440               | 221                                    | NR                             | 570               | 838                                    | NR                             | 700               | 146                                    | NR                             | 830               | 3                                      | NR                             | 960               | 0                                      | NR                             |
| 445               | 418                                    | NR                             | 575               | 875                                    | NR                             | 705               | 125                                    | NR                             | 835               | 2                                      | NR                             | 965               | 0                                      | NR                             |
| 450               | 729                                    | NR                             | 580               | 913                                    | NR                             | 710               | 107                                    | NR                             | 840               | 2                                      | NR                             | 970               | 0                                      | NR                             |
| 455               | 816                                    | NR                             | 585               | 946                                    | NR                             | 715               | 90                                     | NR                             | 845               | 2                                      | NR                             | 975               | 0                                      | NR                             |
| 460               | 578                                    | NR                             | 590               | 976                                    | NR                             | 720               | 77                                     | NR                             | 850               | 1                                      | NR                             | 980               | 0                                      | NR                             |
| 465               | 458                                    | NR                             | 595               | 992                                    | NR                             | 725               | 66                                     | NR                             | 855               | 1                                      | NR                             | 985               | 0                                      | NR                             |
| 470               | 390                                    | NR                             | 600               | 999                                    | NR                             | 730               | 56                                     | NR                             | 860               | 1                                      | NR                             | 990               | 0                                      | NR                             |
| 475               | 299                                    | NR                             | 605               | 995                                    | NR                             | 735               | 47                                     | NR                             | 865               | 1                                      | NR                             | 995               | 0                                      | NR                             |
| 480               | 260                                    | NR                             | 610               | 975                                    | NR                             | 740               | 40                                     | NR                             | 870               | 1                                      | NR                             | 1000              | 0                                      | NR                             |
| 485               | 271                                    | NR                             | 615               | 948                                    | NR                             | 745               | 34                                     | NR                             | 875               | 1                                      | NR                             |                   |                                        |                                |

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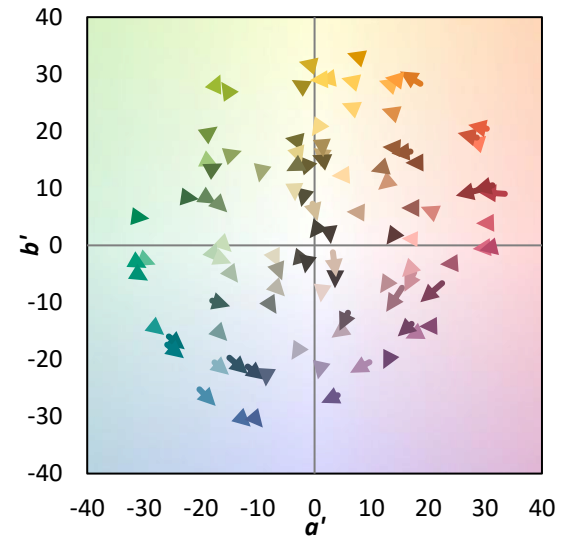
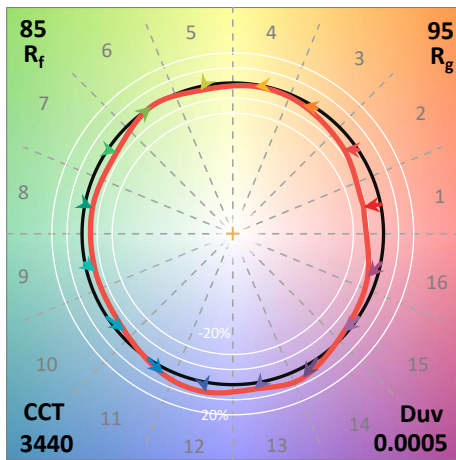
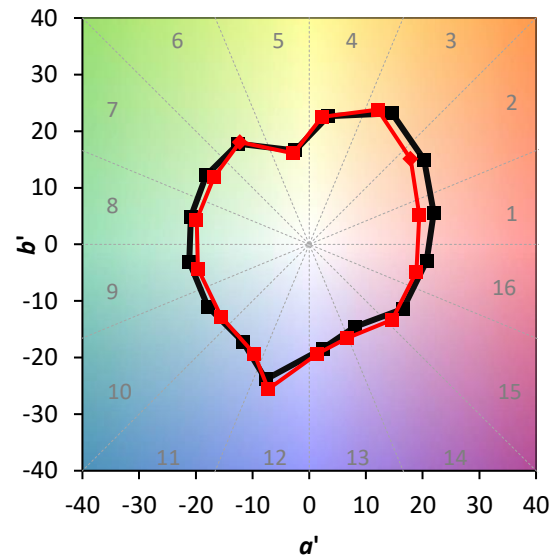
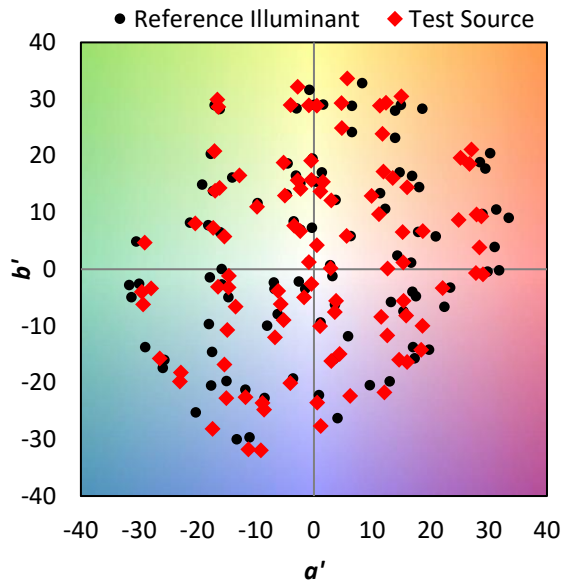
TM-30-18

### Summary

$R_f = 84.9$   
 $R_g = 94.6$   
 $CIE R_a = 84.2$   
 $R_9 = 13.6$



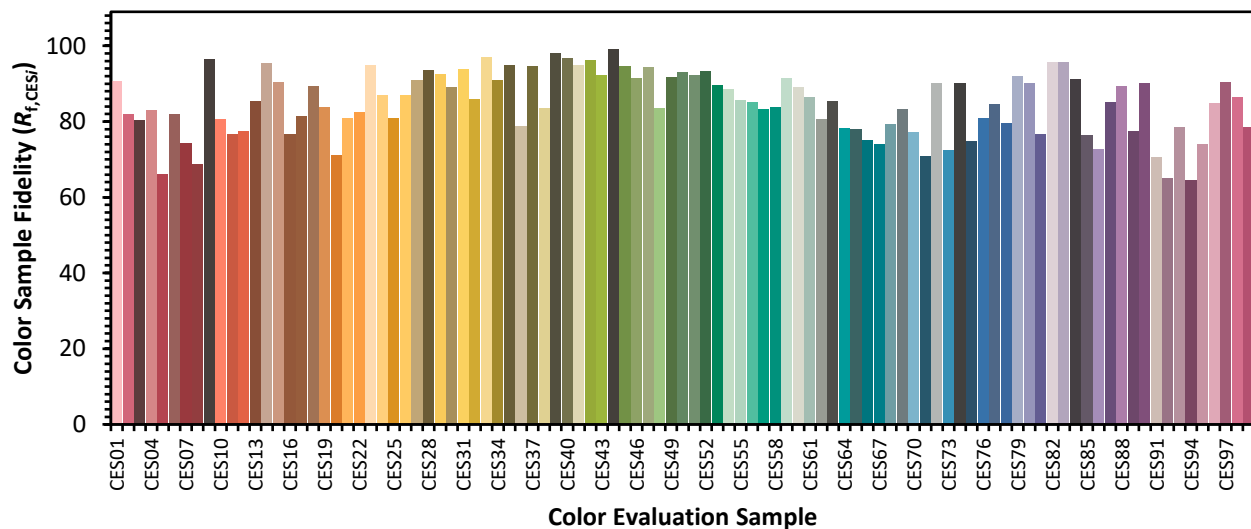
### Color Vector Graphics

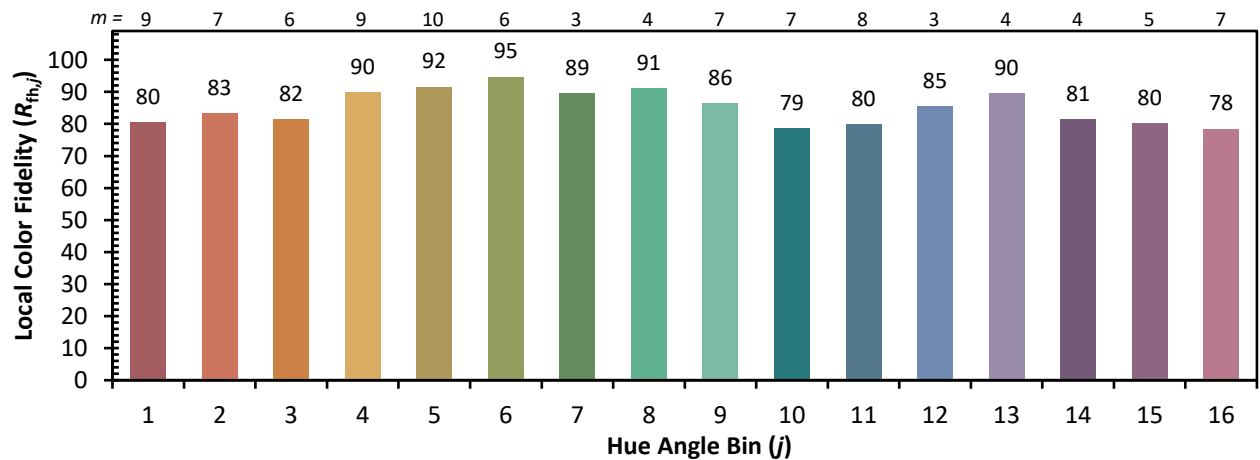
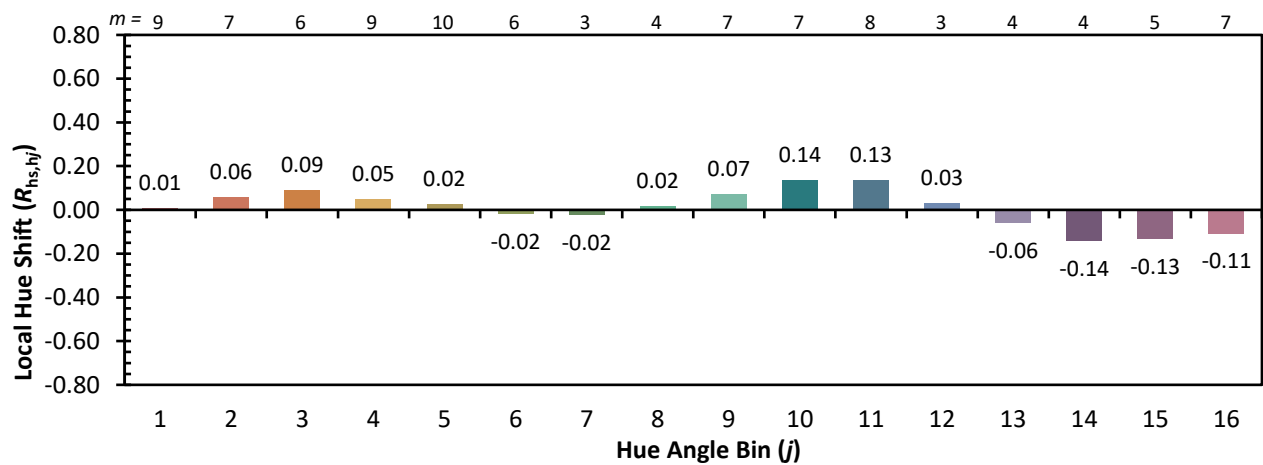
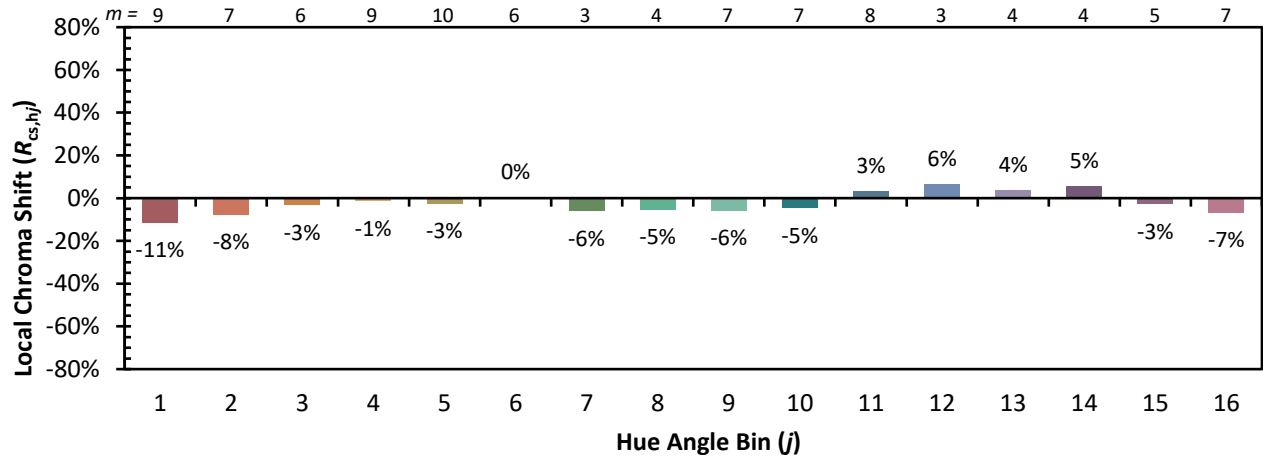




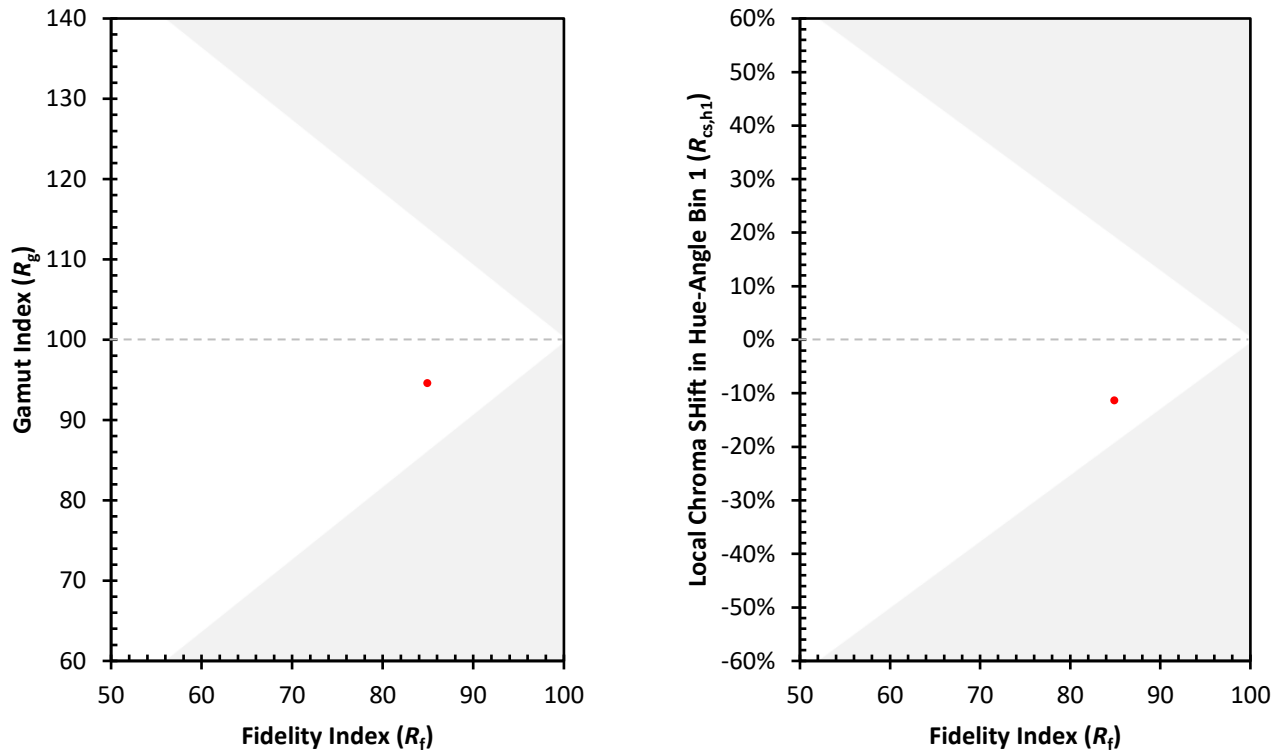
**Individual Sample Fidelity Index ( $R_{f,i}$ )**

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 87 | CES51 = 92 | CES76 = 81 |
| CES02 = 62 | CES27 = 91 | CES52 = 93 | CES77 = 85 |
| CES03 = 31 | CES28 = 94 | CES53 = 90 | CES78 = 80 |
| CES04 = 70 | CES29 = 92 | CES54 = 89 | CES79 = 92 |
| CES05 = 49 | CES30 = 89 | CES55 = 86 | CES80 = 90 |
| CES06 = 51 | CES31 = 94 | CES56 = 85 | CES81 = 77 |
| CES07 = 41 | CES32 = 86 | CES57 = 83 | CES82 = 96 |
| CES08 = 40 | CES33 = 97 | CES58 = 84 | CES83 = 96 |
| CES09 = 29 | CES34 = 91 | CES59 = 91 | CES84 = 91 |
| CES10 = 75 | CES35 = 95 | CES60 = 89 | CES85 = 76 |
| CES11 = 58 | CES36 = 79 | CES61 = 87 | CES86 = 73 |
| CES12 = 64 | CES37 = 95 | CES62 = 81 | CES87 = 85 |
| CES13 = 43 | CES38 = 84 | CES63 = 85 | CES88 = 89 |
| CES14 = 74 | CES39 = 98 | CES64 = 78 | CES89 = 78 |
| CES15 = 71 | CES40 = 97 | CES65 = 78 | CES90 = 90 |
| CES16 = 47 | CES41 = 95 | CES66 = 75 | CES91 = 71 |
| CES17 = 50 | CES42 = 96 | CES67 = 74 | CES92 = 65 |
| CES18 = 56 | CES43 = 92 | CES68 = 79 | CES93 = 79 |
| CES19 = 72 | CES44 = 99 | CES69 = 83 | CES94 = 64 |
| CES20 = 66 | CES45 = 95 | CES70 = 77 | CES95 = 74 |
| CES21 = 86 | CES46 = 91 | CES71 = 71 | CES96 = 85 |
| CES22 = 78 | CES47 = 94 | CES72 = 90 | CES97 = 90 |
| CES23 = 92 | CES48 = 83 | CES73 = 72 | CES98 = 86 |
| CES24 = 90 | CES49 = 92 | CES74 = 90 | CES99 = 79 |
| CES25 = 72 | CES50 = 93 | CES75 = 75 |            |



**Color Rendition by Hue-Angle Bin**


**Measure Comparisons**



(END OF REPORT)