

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: P1215053

Luminaire Tested: 22-ID2-60-CNV-L930-U

Issue Date: 12/4/2025

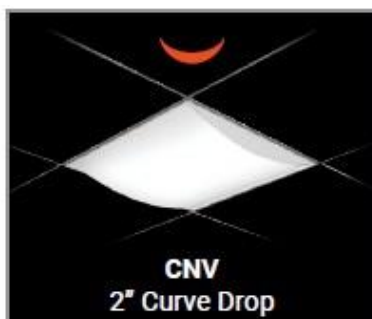
**Test Information**

Test Method: LM-79-2019  
Report Number: P1215053  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2506-458-15)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/4/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: CORELITE  
Catalog Number: 22-ID2-60-CNV-L930-U  
Description: 2X2 IN DEPTH TROFFER WITH 2INCH CURVE DROP  
Light Source: 3000K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

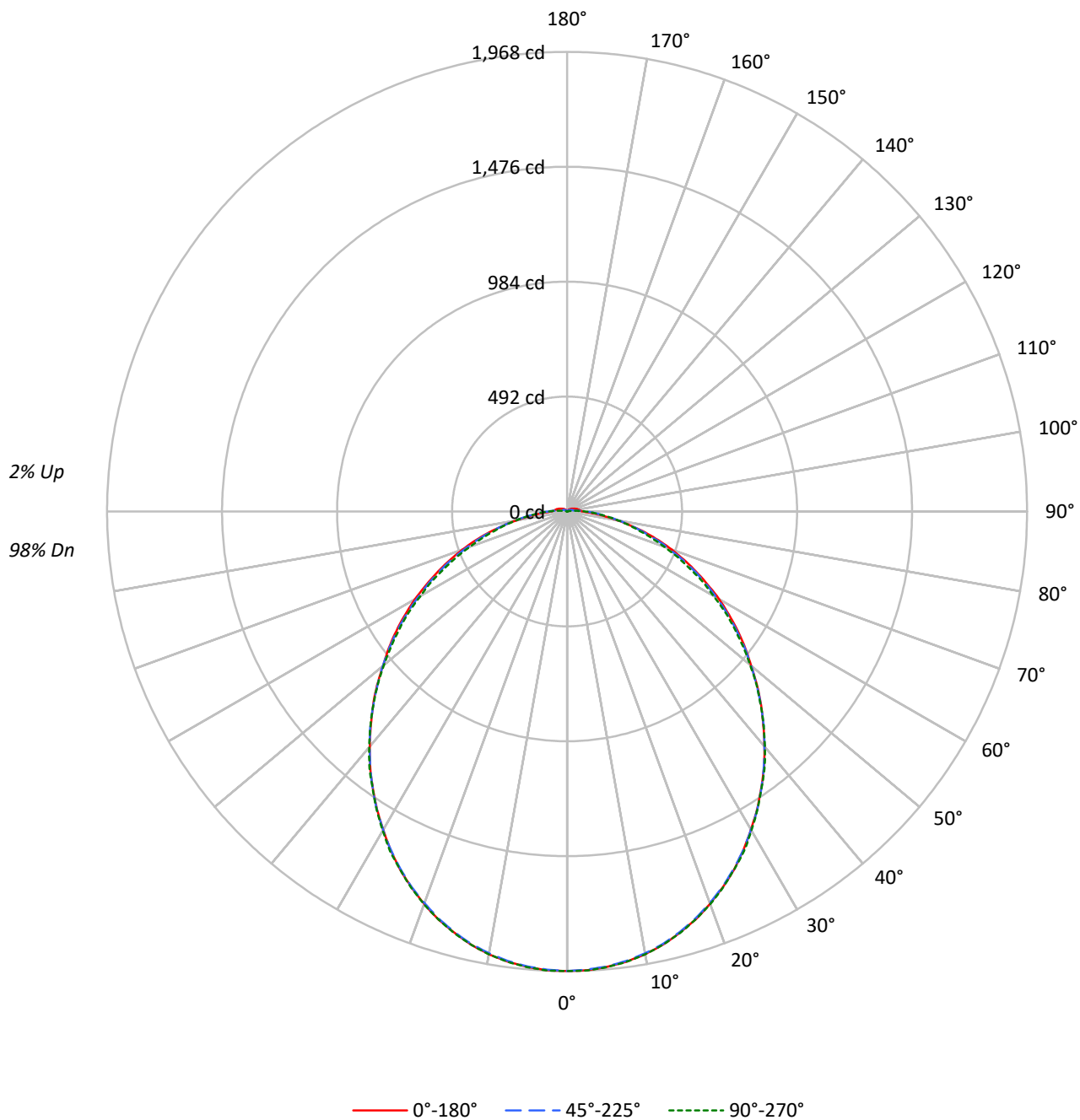
Lumens per Lamp: N/A  
Luminaire Lumens: 5296.3 lumens  
Efficiency: N/A  
Efficacy: 100.9 lumens/watt  
Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.31  
Luminous Opening: Rectangular w/ Sides (W: 2' x L: 2' x H: 0.16')  
CIE Type: Direct

Input Watts (W): 52.5  
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



TEST NUMBER: P1215053  
CATALOG NUMBER: 22-ID2-60-CNV-L930-U

### Luminous Intensity Polar Plot



TEST NUMBER: P1215053

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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 | 110 | 110 | 110 |  | 105 | 105 | 105 |  | 98 |
| 1   | 108 | 103 | 99  | 95  | 105 | 101 | 97  | 93  | 96  | 93  | 90  |  | 92  | 89  | 87  |  | 82 |
| 2   | 98  | 90  | 83  | 77  | 96  | 88  | 82  | 76  | 84  | 79  | 74  |  | 81  | 76  | 72  |  | 68 |
| 3   | 90  | 79  | 71  | 65  | 87  | 77  | 70  | 64  | 74  | 68  | 62  |  | 71  | 66  | 61  |  | 58 |
| 4   | 82  | 70  | 62  | 55  | 80  | 69  | 61  | 54  | 66  | 59  | 53  |  | 64  | 57  | 52  |  | 49 |
| 5   | 76  | 63  | 54  | 47  | 74  | 62  | 53  | 47  | 59  | 52  | 46  |  | 57  | 51  | 46  |  | 43 |
| 6   | 70  | 57  | 48  | 42  | 68  | 56  | 47  | 41  | 54  | 46  | 41  |  | 52  | 45  | 40  |  | 38 |
| 7   | 65  | 52  | 43  | 37  | 63  | 51  | 42  | 37  | 49  | 42  | 36  |  | 47  | 41  | 36  |  | 33 |
| 8   | 61  | 47  | 39  | 33  | 59  | 46  | 38  | 33  | 45  | 38  | 32  |  | 43  | 37  | 32  |  | 30 |
| 9   | 57  | 43  | 35  | 30  | 55  | 43  | 35  | 30  | 41  | 34  | 29  |  | 40  | 34  | 29  |  | 27 |
| 10  | 53  | 40  | 32  | 27  | 52  | 39  | 32  | 27  | 38  | 31  | 27  |  | 37  | 31  | 26  |  | 24 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 5295 | 5295 | 5295 |
| 5°  | 5252 | 5230 | 5254 |
| 10° | 5187 | 5147 | 5189 |
| 15° | 5091 | 5040 | 5096 |
| 20° | 4975 | 4908 | 4981 |
| 25° | 4841 | 4759 | 4841 |
| 30° | 4673 | 4591 | 4685 |
| 35° | 4505 | 4410 | 4509 |
| 40° | 4325 | 4215 | 4335 |
| 45° | 4136 | 4006 | 4129 |
| 50° | 3929 | 3795 | 3908 |
| 55° | 3753 | 3568 | 3680 |
| 60° | 3552 | 3322 | 3417 |
| 65° | 3309 | 3072 | 3150 |
| 70° | 3068 | 2775 | 2857 |
| 75° | 2757 | 2454 | 2571 |
| 80° | 2337 | 2138 | 2372 |
| 85° | 1945 | 1893 | 2245 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 4136 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 185.7  | 3.5       |
| 10°-20°   | 525.9  | 9.9       |
| 20°-30°   | 777.9  | 14.7      |
| 30°-40°   | 906.4  | 17.1      |
| 40°-50°   | 905.0  | 17.1      |
| 50°-60°   | 790.1  | 14.9      |
| 60°-70°   | 592.2  | 11.2      |
| 70°-80°   | 356.8  | 6.7       |
| 80°-90°   | 154.0  | 2.9       |
| 90°-100°  | 50.8   | 1.0       |
| 100°-110° | 23.4   | 0.4       |
| 110°-120° | 14.5   | 0.3       |
| 120°-130° | 7.9    | 0.1       |
| 130°-140° | 3.9    | 0.1       |
| 140°-150° | 1.4    | 0.0       |
| 150°-160° | 0.4    | 0.0       |
| 160°-170° | 0.0    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-30°    | 1489.5 | 28.1      |
| 0°-40°    | 2395.9 | 45.2      |
| 0°-60°    | 4091.0 | 77.2      |
| 0°-90°    | 5193.9 | 98.1      |
| 90°-120°  | 88.7   | 1.7       |
| 90°-150°  | 101.9  | 1.9       |
| 90°-180°  | 102.0  | 1.9       |
| 0°-180°   | 5296.3 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 1968 | 1968  | 1968 | 1968  | 1968 |      |
| 5°   | 1958 | 1956  | 1955 | 1958  | 1958 | 186  |
| 15°  | 1867 | 1866  | 1864 | 1867  | 1869 | 526  |
| 25°  | 1691 | 1688  | 1687 | 1692  | 1691 | 778  |
| 35°  | 1448 | 1448  | 1449 | 1452  | 1450 | 906  |
| 45°  | 1174 | 1173  | 1172 | 1175  | 1172 | 905  |
| 55°  | 891  | 888   | 883  | 880   | 874  | 797  |
| 65°  | 609  | 604   | 600  | 589   | 580  | 604  |
| 75°  | 344  | 342   | 336  | 331   | 321  | 364  |
| 85°  | 121  | 127   | 141  | 144   | 139  | 120  |
| 90°  | 64   | 72    | 80   | 81    | 77   | 37   |
| 95°  | 55   | 49    | 43   | 38    | 33   | 43   |
| 105° | 41   | 36    | 23   | 7     | 1    | 44   |
| 115° | 29   | 25    | 15   | 3     | 0    | 29   |
| 125° | 19   | 16    | 9    | 1     | 0    | 17   |
| 135° | 11   | 9     | 4    | 1     | 1    | 8    |
| 145° | 5    | 4     | 1    | 1     | 1    | 3    |
| 155° | 1    | 1     | 1    | 1     | 1    | 1    |
| 165° | 0    | 0     | 0    | 0     | 0    | 0    |
| 175° | 0    | 0     | 0    | 0     | 0    | 0    |
| 180° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 1967.8 | 1967.8 | 1967.8 | 1967.8 | 1967.8 |
| 2.5°   | 1966.5 | 1965.2 | 1963.8 | 1965.2 | 1967.2 |
| 5°     | 1957.8 | 1956.5 | 1955.2 | 1957.8 | 1958.5 |
| 7.5°   | 1944.5 | 1943.2 | 1941.2 | 1943.2 | 1945.2 |
| 10°    | 1925.2 | 1923.2 | 1921.2 | 1923.2 | 1925.9 |
| 12.5°  | 1899.9 | 1899.2 | 1896.6 | 1897.9 | 1899.9 |
| 15°    | 1866.6 | 1865.9 | 1863.9 | 1866.6 | 1868.6 |
| 17.5°  | 1831.3 | 1827.9 | 1827.3 | 1829.3 | 1831.3 |
| 20°    | 1788.0 | 1786.6 | 1784.6 | 1788.0 | 1790.0 |
| 22.5°  | 1741.3 | 1741.3 | 1739.3 | 1741.3 | 1743.3 |
| 25°    | 1691.4 | 1688.1 | 1687.4 | 1692.0 | 1691.4 |
| 27.5°  | 1634.1 | 1635.4 | 1633.4 | 1634.8 | 1640.1 |
| 30°    | 1573.5 | 1574.1 | 1574.1 | 1576.8 | 1577.5 |
| 32.5°  | 1512.9 | 1513.5 | 1514.2 | 1514.8 | 1515.5 |
| 35°    | 1448.2 | 1447.6 | 1448.9 | 1451.6 | 1449.6 |
| 37.5°  | 1383.6 | 1381.6 | 1382.3 | 1382.9 | 1388.3 |
| 40°    | 1313.7 | 1313.0 | 1313.7 | 1317.7 | 1317.0 |
| 42.5°  | 1242.4 | 1242.4 | 1245.7 | 1247.1 | 1245.1 |
| 45°    | 1173.8 | 1173.1 | 1171.8 | 1175.1 | 1171.8 |
| 47.5°  | 1102.5 | 1100.5 | 1099.8 | 1102.5 | 1099.2 |
| 50°    | 1027.9 | 1029.9 | 1028.6 | 1026.6 | 1022.6 |
| 52.5°  | 961.3  | 959.3  | 956.6  | 953.9  | 947.9  |
| 55°    | 891.3  | 888.0  | 883.3  | 880.0  | 874.0  |
| 57.5°  | 820.0  | 816.0  | 811.4  | 805.4  | 802.7  |
| 60°    | 751.4  | 744.8  | 738.1  | 733.4  | 722.8  |
| 62.5°  | 677.5  | 676.2  | 667.5  | 662.2  | 656.2  |
| 65°    | 608.9  | 604.2  | 599.5  | 588.9  | 579.6  |
| 67.5°  | 540.9  | 538.9  | 528.9  | 520.9  | 512.3  |
| 70°    | 475.6  | 469.0  | 462.3  | 454.3  | 443.0  |
| 72.5°  | 409.7  | 405.7  | 397.7  | 389.0  | 380.4  |
| 75°    | 344.4  | 341.7  | 335.7  | 331.1  | 321.1  |
| 77.5°  | 278.5  | 278.5  | 279.1  | 277.1  | 270.5  |
| 80°    | 219.2  | 223.2  | 226.5  | 227.8  | 222.5  |
| 82.5°  | 166.5  | 170.5  | 181.9  | 185.2  | 178.5  |
| 85°    | 120.6  | 127.2  | 140.6  | 143.9  | 139.2  |
| 87.5°  | 85.9   | 95.9   | 106.6  | 110.6  | 105.9  |
| 90°    | 64.0   | 71.9   | 79.9   | 81.3   | 76.6   |
| 92.5°  | 58.6   | 56.6   | 58.6   | 57.3   | 52.6   |
| 95°    | 54.6   | 48.6   | 43.3   | 38.0   | 32.6   |
| 97.5°  | 51.3   | 45.3   | 32.6   | 23.3   | 18.7   |
| 100°   | 48.0   | 42.0   | 27.3   | 13.3   | 7.3    |
| 102.5° | 44.6   | 39.3   | 25.3   | 8.7    | 1.3    |
| 105°   | 41.3   | 36.0   | 22.6   | 7.3    | 0.7    |
| 107.5° | 38.0   | 33.3   | 20.7   | 6.0    | 0.7    |
| 110°   | 34.6   | 30.6   | 18.7   | 5.3    | 0.7    |

TEST NUMBER: P1215053

CATALOG NUMBER: 22-ID2-60-CNV-L930-U

**CANDELA DISTRIBUTION (continued):**

|        | 0°   | 22.5° | 45°  | 67.5° | 90° |
|--------|------|-------|------|-------|-----|
| 112.5° | 32.0 | 28.0  | 16.7 | 4.0   | 0.0 |
| 115°   | 28.6 | 24.6  | 15.3 | 3.3   | 0.0 |
| 117.5° | 26.0 | 22.6  | 13.3 | 2.7   | 0.0 |
| 120°   | 23.3 | 20.0  | 12.0 | 2.0   | 0.0 |
| 122.5° | 20.7 | 18.0  | 10.0 | 1.3   | 0.0 |
| 125°   | 18.7 | 16.0  | 8.7  | 0.7   | 0.0 |
| 127.5° | 16.0 | 14.0  | 7.3  | 0.7   | 0.0 |
| 130°   | 14.0 | 12.0  | 6.7  | 0.7   | 0.7 |
| 132.5° | 12.7 | 10.7  | 5.3  | 0.7   | 0.7 |
| 135°   | 10.7 | 8.7   | 4.0  | 0.7   | 0.7 |
| 137.5° | 9.3  | 7.3   | 3.3  | 0.7   | 0.7 |
| 140°   | 7.3  | 6.0   | 2.7  | 0.7   | 0.7 |
| 142.5° | 6.0  | 4.7   | 2.0  | 0.7   | 0.7 |
| 145°   | 4.7  | 4.0   | 1.3  | 0.7   | 0.7 |
| 147.5° | 3.3  | 2.7   | 0.7  | 0.7   | 0.7 |
| 150°   | 2.7  | 2.0   | 0.7  | 0.7   | 0.7 |
| 152.5° | 2.0  | 1.3   | 0.7  | 0.7   | 0.7 |
| 155°   | 1.3  | 0.7   | 0.7  | 0.7   | 0.7 |
| 157.5° | 0.7  | 0.7   | 0.7  | 0.7   | 0.7 |
| 160°   | 0.7  | 0.7   | 0.7  | 0.7   | 0.7 |
| 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 |

TEST NUMBER: P1215053

CATALOG NUMBER: 22-ID2-60-CNV-L930-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 | 16.25            | 17.83 | 16.65 | 18.19 | 18.55 | 16.15          | 17.73 | 16.55 | 18.09 | 18.45 |
|                 | 3H   | 17.99            | 19.42 | 18.40 | 19.79 | 20.20 | 17.79          | 19.22 | 18.20 | 19.59 | 20.00 |
|                 | 4H   | 18.65            | 20.00 | 19.08 | 20.38 | 20.81 | 18.41          | 19.76 | 18.84 | 20.15 | 20.57 |
|                 | 6H   | 19.13            | 20.38 | 19.57 | 20.79 | 21.22 | 18.92          | 20.17 | 19.36 | 20.58 | 21.02 |
|                 | 8H   | 19.30            | 20.49 | 19.75 | 20.92 | 21.37 | 19.12          | 20.32 | 19.58 | 20.75 | 21.19 |
|                 | 12H  | 19.42            | 20.57 | 19.88 | 20.99 | 21.46 | 19.30          | 20.44 | 19.76 | 20.86 | 21.34 |
| 4H              | 2H   | 16.82            | 18.16 | 17.24 | 18.55 | 18.98 | 16.73          | 18.08 | 17.16 | 18.47 | 18.89 |
|                 | 3H   | 18.76            | 19.90 | 19.20 | 20.33 | 20.78 | 18.59          | 19.73 | 19.03 | 20.16 | 20.61 |
|                 | 4H   | 19.54            | 20.57 | 20.01 | 21.02 | 21.51 | 19.34          | 20.37 | 19.81 | 20.82 | 21.30 |
|                 | 6H   | 20.16            | 21.06 | 20.64 | 21.54 | 22.04 | 19.99          | 20.89 | 20.47 | 21.37 | 21.87 |
|                 | 8H   | 20.38            | 21.22 | 20.87 | 21.70 | 22.21 | 20.25          | 21.10 | 20.74 | 21.57 | 22.08 |
|                 | 12H  | 20.55            | 21.32 | 21.07 | 21.83 | 22.34 | 20.49          | 21.25 | 21.00 | 21.76 | 22.27 |
| 8H              | 4H   | 19.82            | 20.67 | 20.31 | 21.14 | 21.65 | 19.64          | 20.49 | 20.13 | 20.97 | 21.48 |
|                 | 6H   | 20.56            | 21.27 | 21.08 | 21.79 | 22.31 | 20.42          | 21.13 | 20.95 | 21.65 | 22.17 |
|                 | 8H   | 20.86            | 21.49 | 21.39 | 22.03 | 22.56 | 20.78          | 21.41 | 21.31 | 21.95 | 22.48 |
|                 | 12H  | 21.12            | 21.69 | 21.66 | 22.21 | 22.81 | 21.12          | 21.69 | 21.66 | 22.21 | 22.81 |
| 12H             | 4H   | 19.85            | 20.61 | 20.36 | 21.12 | 21.64 | 19.68          | 20.44 | 20.19 | 20.95 | 21.46 |
|                 | 6H   | 20.62            | 21.26 | 21.16 | 21.80 | 22.33 | 20.49          | 21.12 | 21.03 | 21.66 | 22.19 |
|                 | 8H   | 20.98            | 21.54 | 21.52 | 22.07 | 22.67 | 20.91          | 21.47 | 21.44 | 22.00 | 22.60 |

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

Report Prepared for

Cooper Lighting Solutions

Corelite

Report Number: SP1-2506-458-9

Test Date: 08/26/2025

Luminaire Tested: 22ID2-55-CFR1-L930-U

Data in this report applies to families of products including 22ID2-55-CFR1-L930-U

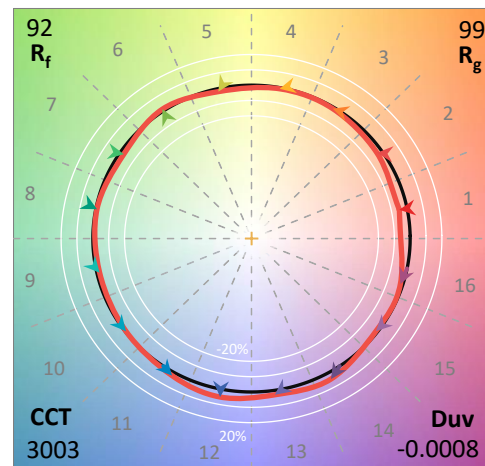
### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2506-458-9  
 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-L930-U**  
 Description: 2X2 CGTX WITH INDEPTH FRAME AND CFR1 LENS - 5500 LUMEN 3000K 90CRI

### Spectral Parameters

CCT (K): 3003  
 CIE  $u'$ : 0.2507  
 CIE  $v'$ : 0.5202  
 Duv: -0.0008  
 CIE x: 0.4356  
 CIE y: 0.4017  
 CIE z: 0.1627  
 Peak Wavelength (nm): 618  
 Dominant Wavelength (nm): 583  
 Purity: 51.31044  
 R<sub>f</sub>: 91.9  
 R<sub>g</sub>: 99.2

CRI (Ra): 93.2  
 R1: 93.7  
 R2: 97.2  
 R3: 98.7  
 R4: 93.5  
 R5: 93.6  
 R6: 96.3  
 R7: 91.5  
 R8: 81.5  
 R9: 59.0  
 R10: 92.7  
 R11: 94.9  
 R12: 82.6  
 R13: 94.8  
 R14: 99.1  
 R15: 89.5



### Test Conditions

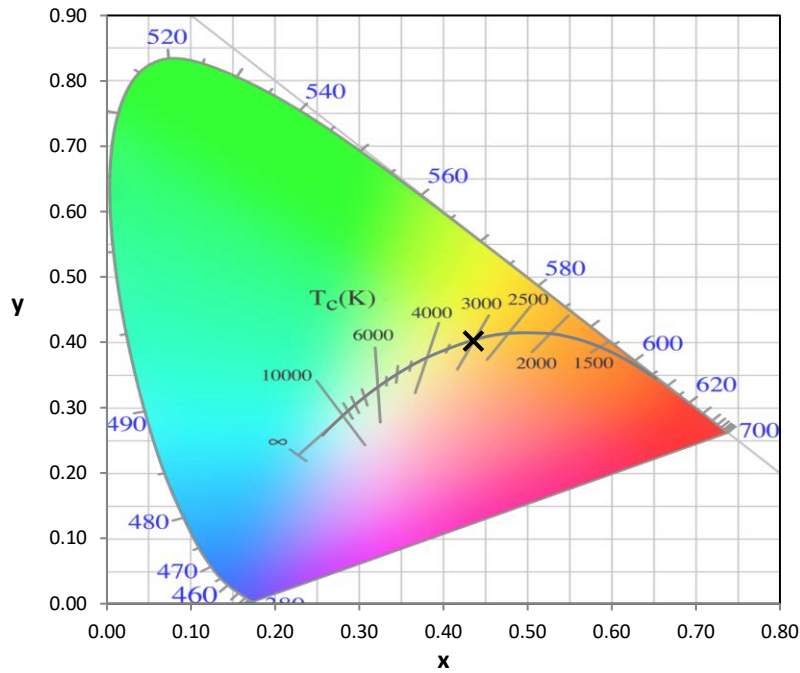
Stabilization Time: 32M  
 Operation Time: 1H 32M  
 Sphere Temperature (°C): 25.2

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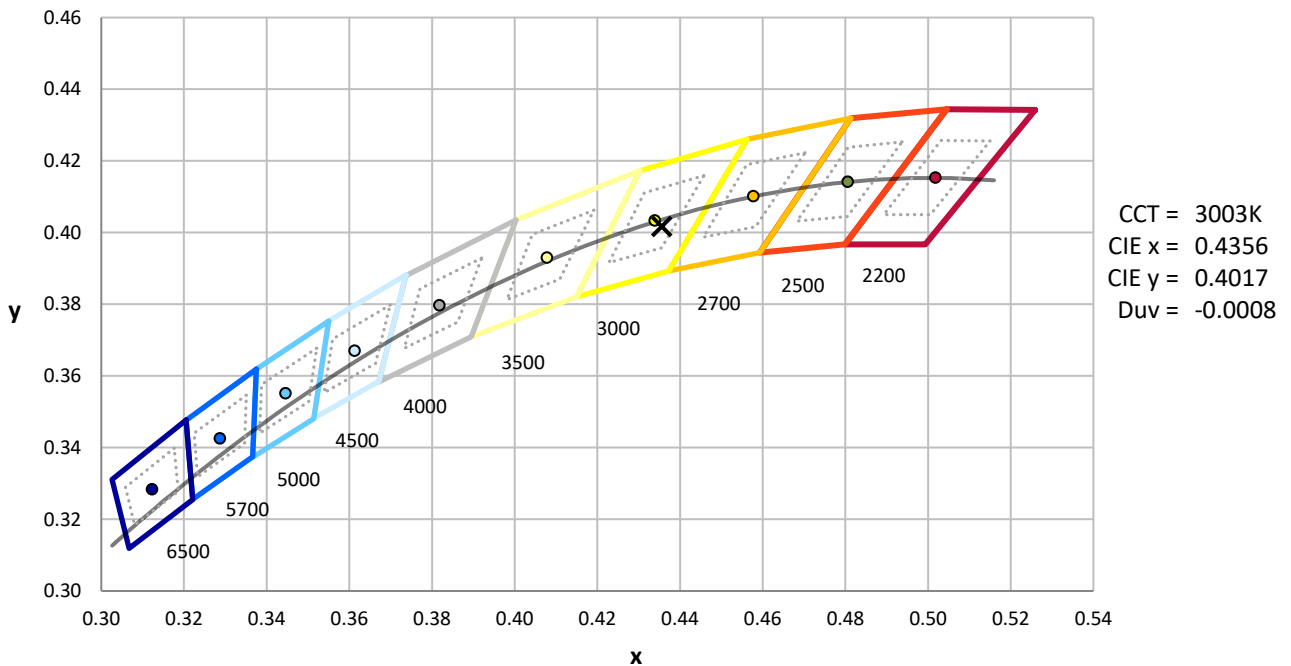
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| 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**



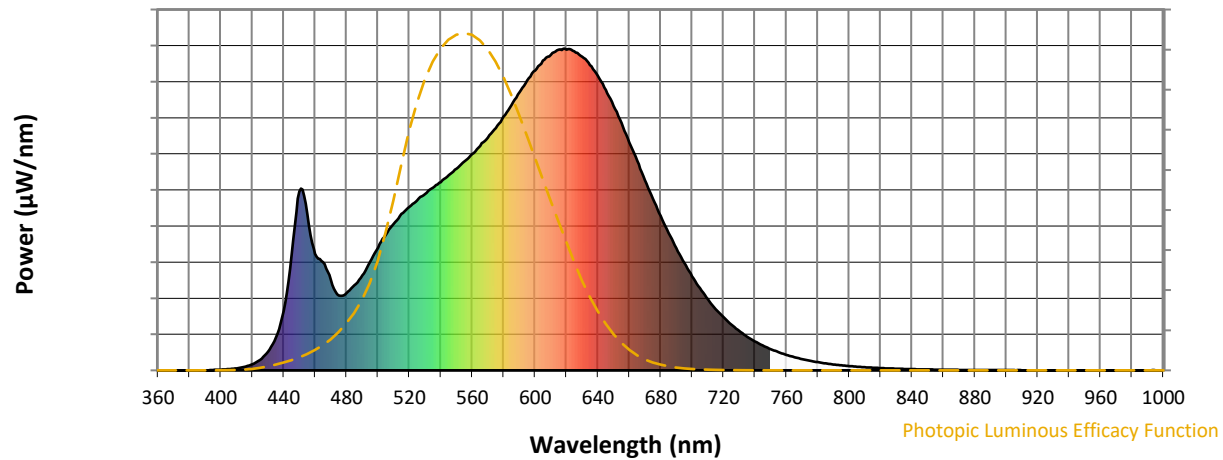
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2506-458-9

### Photopic Flux vs. Wavelength

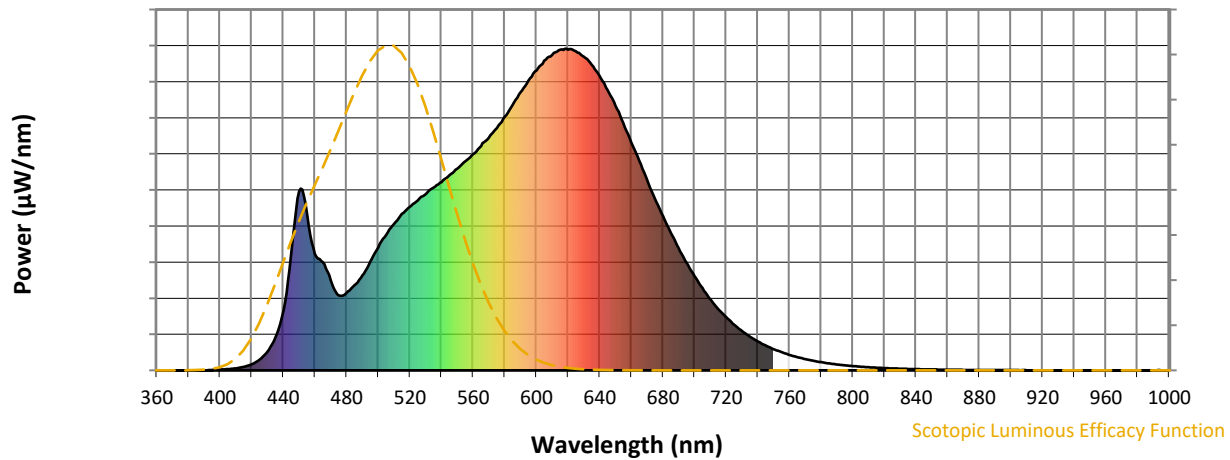


### Photopic Lumens: NR

| λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 296                         | NR               | 620       | 997                         | NR               | 750       | 66                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 338                         | NR               | 625       | 992                         | NR               | 755       | 56                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 381                         | NR               | 630       | 975                         | NR               | 760       | 48                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 421                         | NR               | 635       | 949                         | NR               | 765       | 41                          | NR               | 895       | 1                           | NR               |
| 380       | 0                           | NR               | 510       | 456                         | NR               | 640       | 916                         | NR               | 770       | 35                          | NR               | 900       | 1                           | NR               |
| 385       | 0                           | NR               | 515       | 487                         | NR               | 645       | 871                         | NR               | 775       | 30                          | NR               | 905       | 1                           | NR               |
| 390       | 0                           | NR               | 520       | 508                         | NR               | 650       | 821                         | NR               | 780       | 26                          | NR               | 910       | 1                           | NR               |
| 395       | 1                           | NR               | 525       | 529                         | NR               | 655       | 769                         | NR               | 785       | 22                          | NR               | 915       | 0                           | NR               |
| 400       | 2                           | NR               | 530       | 548                         | NR               | 660       | 709                         | NR               | 790       | 18                          | NR               | 920       | 0                           | NR               |
| 405       | 4                           | NR               | 535       | 568                         | NR               | 665       | 652                         | NR               | 795       | 16                          | NR               | 925       | 0                           | NR               |
| 410       | 6                           | NR               | 540       | 585                         | NR               | 670       | 591                         | NR               | 800       | 13                          | NR               | 930       | 0                           | NR               |
| 415       | 11                          | NR               | 545       | 607                         | NR               | 675       | 534                         | NR               | 805       | 11                          | NR               | 935       | 0                           | NR               |
| 420       | 19                          | NR               | 550       | 627                         | NR               | 680       | 480                         | NR               | 810       | 10                          | NR               | 940       | 0                           | NR               |
| 425       | 33                          | NR               | 555       | 649                         | NR               | 685       | 427                         | NR               | 815       | 8                           | NR               | 945       | 0                           | NR               |
| 430       | 58                          | NR               | 560       | 673                         | NR               | 690       | 380                         | NR               | 820       | 7                           | NR               | 950       | 0                           | NR               |
| 435       | 103                         | NR               | 565       | 697                         | NR               | 695       | 334                         | NR               | 825       | 6                           | NR               | 955       | 0                           | NR               |
| 440       | 184                         | NR               | 570       | 723                         | NR               | 700       | 292                         | NR               | 830       | 5                           | NR               | 960       | 0                           | NR               |
| 445       | 360                         | NR               | 575       | 753                         | NR               | 705       | 255                         | NR               | 835       | 4                           | NR               | 965       | 0                           | NR               |
| 450       | 557                         | NR               | 580       | 789                         | NR               | 710       | 221                         | NR               | 840       | 4                           | NR               | 970       | 0                           | NR               |
| 455       | 486                         | NR               | 585       | 825                         | NR               | 715       | 190                         | NR               | 845       | 3                           | NR               | 975       | 0                           | NR               |
| 460       | 362                         | NR               | 590       | 864                         | NR               | 720       | 166                         | NR               | 850       | 3                           | NR               | 980       | 0                           | NR               |
| 465       | 337                         | NR               | 595       | 902                         | NR               | 725       | 143                         | NR               | 855       | 2                           | NR               | 985       | 0                           | NR               |
| 470       | 279                         | NR               | 600       | 932                         | NR               | 730       | 122                         | NR               | 860       | 2                           | NR               | 990       | 0                           | NR               |
| 475       | 233                         | NR               | 605       | 963                         | NR               | 735       | 105                         | NR               | 865       | 2                           | NR               | 995       | 0                           | NR               |
| 480       | 241                         | NR               | 610       | 981                         | NR               | 740       | 90                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 264                         | NR               | 615       | 997                         | NR               | 745       | 77                          | NR               | 875       | 1                           | NR               |           |                             |                  |

REPORT NUMBER: SP1-2506-458-9

### Scotopic Flux vs. Wavelength



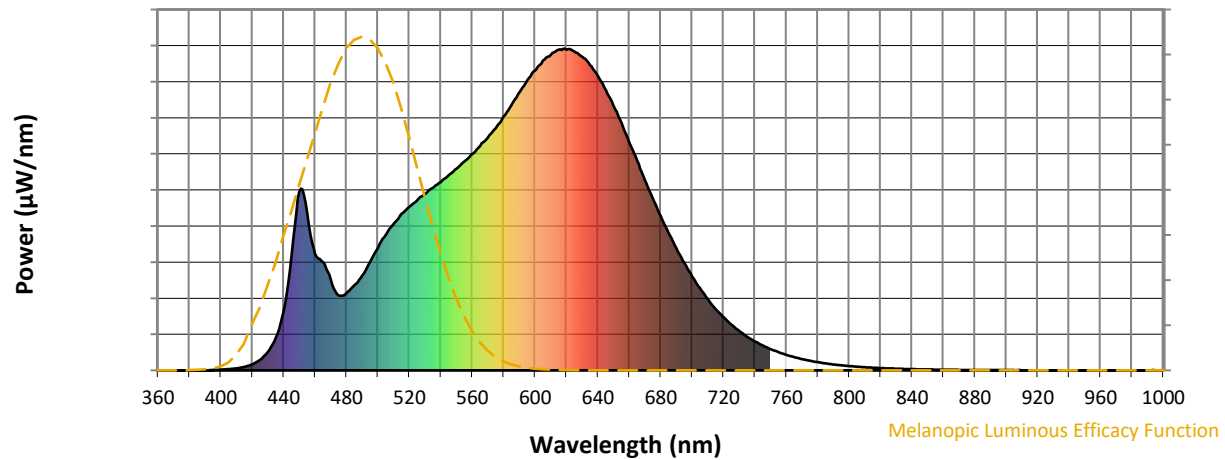
Scotopic Lumens: NR

S/P: 1.43

| λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 296                         | NR               | 620       | 997                         | NR               | 750       | 66                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 338                         | NR               | 625       | 992                         | NR               | 755       | 56                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 381                         | NR               | 630       | 975                         | NR               | 760       | 48                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 421                         | NR               | 635       | 949                         | NR               | 765       | 41                          | NR               | 895       | 1                           | NR               |
| 380       | 0                           | NR               | 510       | 456                         | NR               | 640       | 916                         | NR               | 770       | 35                          | NR               | 900       | 1                           | NR               |
| 385       | 0                           | NR               | 515       | 487                         | NR               | 645       | 871                         | NR               | 775       | 30                          | NR               | 905       | 1                           | NR               |
| 390       | 0                           | NR               | 520       | 508                         | NR               | 650       | 821                         | NR               | 780       | 26                          | NR               | 910       | 1                           | NR               |
| 395       | 1                           | NR               | 525       | 529                         | NR               | 655       | 769                         | NR               | 785       | 22                          | NR               | 915       | 0                           | NR               |
| 400       | 2                           | NR               | 530       | 548                         | NR               | 660       | 709                         | NR               | 790       | 18                          | NR               | 920       | 0                           | NR               |
| 405       | 4                           | NR               | 535       | 568                         | NR               | 665       | 652                         | NR               | 795       | 16                          | NR               | 925       | 0                           | NR               |
| 410       | 6                           | NR               | 540       | 585                         | NR               | 670       | 591                         | NR               | 800       | 13                          | NR               | 930       | 0                           | NR               |
| 415       | 11                          | NR               | 545       | 607                         | NR               | 675       | 534                         | NR               | 805       | 11                          | NR               | 935       | 0                           | NR               |
| 420       | 19                          | NR               | 550       | 627                         | NR               | 680       | 480                         | NR               | 810       | 10                          | NR               | 940       | 0                           | NR               |
| 425       | 33                          | NR               | 555       | 649                         | NR               | 685       | 427                         | NR               | 815       | 8                           | NR               | 945       | 0                           | NR               |
| 430       | 58                          | NR               | 560       | 673                         | NR               | 690       | 380                         | NR               | 820       | 7                           | NR               | 950       | 0                           | NR               |
| 435       | 103                         | NR               | 565       | 697                         | NR               | 695       | 334                         | NR               | 825       | 6                           | NR               | 955       | 0                           | NR               |
| 440       | 184                         | NR               | 570       | 723                         | NR               | 700       | 292                         | NR               | 830       | 5                           | NR               | 960       | 0                           | NR               |
| 445       | 360                         | NR               | 575       | 753                         | NR               | 705       | 255                         | NR               | 835       | 4                           | NR               | 965       | 0                           | NR               |
| 450       | 557                         | NR               | 580       | 789                         | NR               | 710       | 221                         | NR               | 840       | 4                           | NR               | 970       | 0                           | NR               |
| 455       | 486                         | NR               | 585       | 825                         | NR               | 715       | 190                         | NR               | 845       | 3                           | NR               | 975       | 0                           | NR               |
| 460       | 362                         | NR               | 590       | 864                         | NR               | 720       | 166                         | NR               | 850       | 3                           | NR               | 980       | 0                           | NR               |
| 465       | 337                         | NR               | 595       | 902                         | NR               | 725       | 143                         | NR               | 855       | 2                           | NR               | 985       | 0                           | NR               |
| 470       | 279                         | NR               | 600       | 932                         | NR               | 730       | 122                         | NR               | 860       | 2                           | NR               | 990       | 0                           | NR               |
| 475       | 233                         | NR               | 605       | 963                         | NR               | 735       | 105                         | NR               | 865       | 2                           | NR               | 995       | 0                           | NR               |
| 480       | 241                         | NR               | 610       | 981                         | NR               | 740       | 90                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 264                         | NR               | 615       | 997                         | NR               | 745       | 77                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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### Melanopic Flux vs. Wavelength


**Melanopic Lumens: NR**
**M/P: 2.82**

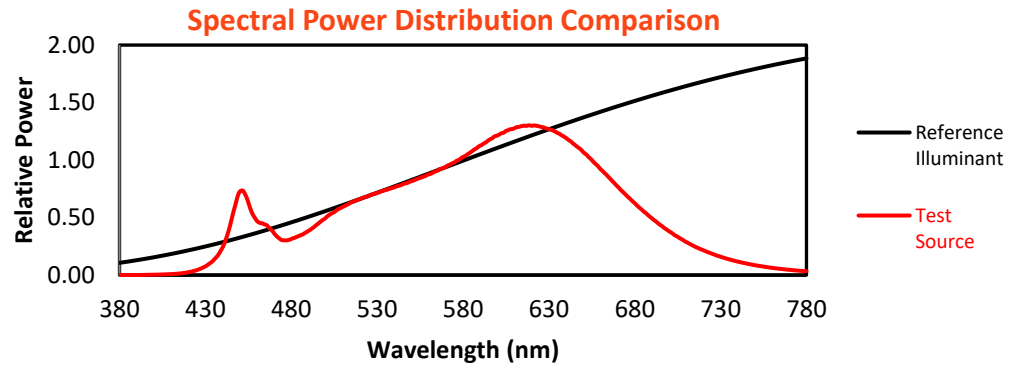
| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<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               | 296                                  | NR                             | 620               | 997                                  | NR                             | 750               | 66                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 338                                  | NR                             | 625               | 992                                  | NR                             | 755               | 56                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 381                                  | NR                             | 630               | 975                                  | NR                             | 760               | 48                                   | NR                             | 890               | 1                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 421                                  | NR                             | 635               | 949                                  | NR                             | 765               | 41                                   | NR                             | 895               | 1                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 456                                  | NR                             | 640               | 916                                  | NR                             | 770               | 35                                   | NR                             | 900               | 1                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 487                                  | NR                             | 645               | 871                                  | NR                             | 775               | 30                                   | NR                             | 905               | 1                                    | NR                             |
| 390               | 0                                    | NR                             | 520               | 508                                  | NR                             | 650               | 821                                  | NR                             | 780               | 26                                   | NR                             | 910               | 1                                    | NR                             |
| 395               | 1                                    | NR                             | 525               | 529                                  | NR                             | 655               | 769                                  | NR                             | 785               | 22                                   | NR                             | 915               | 0                                    | NR                             |
| 400               | 2                                    | NR                             | 530               | 548                                  | NR                             | 660               | 709                                  | NR                             | 790               | 18                                   | NR                             | 920               | 0                                    | NR                             |
| 405               | 4                                    | NR                             | 535               | 568                                  | NR                             | 665               | 652                                  | NR                             | 795               | 16                                   | NR                             | 925               | 0                                    | NR                             |
| 410               | 6                                    | NR                             | 540               | 585                                  | NR                             | 670               | 591                                  | NR                             | 800               | 13                                   | NR                             | 930               | 0                                    | NR                             |
| 415               | 11                                   | NR                             | 545               | 607                                  | NR                             | 675               | 534                                  | NR                             | 805               | 11                                   | NR                             | 935               | 0                                    | NR                             |
| 420               | 19                                   | NR                             | 550               | 627                                  | NR                             | 680               | 480                                  | NR                             | 810               | 10                                   | NR                             | 940               | 0                                    | NR                             |
| 425               | 33                                   | NR                             | 555               | 649                                  | NR                             | 685               | 427                                  | NR                             | 815               | 8                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 58                                   | NR                             | 560               | 673                                  | NR                             | 690               | 380                                  | NR                             | 820               | 7                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 103                                  | NR                             | 565               | 697                                  | NR                             | 695               | 334                                  | NR                             | 825               | 6                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 184                                  | NR                             | 570               | 723                                  | NR                             | 700               | 292                                  | NR                             | 830               | 5                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 360                                  | NR                             | 575               | 753                                  | NR                             | 705               | 255                                  | NR                             | 835               | 4                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 557                                  | NR                             | 580               | 789                                  | NR                             | 710               | 221                                  | NR                             | 840               | 4                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 486                                  | NR                             | 585               | 825                                  | NR                             | 715               | 190                                  | NR                             | 845               | 3                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 362                                  | NR                             | 590               | 864                                  | NR                             | 720               | 166                                  | NR                             | 850               | 3                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 337                                  | NR                             | 595               | 902                                  | NR                             | 725               | 143                                  | NR                             | 855               | 2                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 279                                  | NR                             | 600               | 932                                  | NR                             | 730               | 122                                  | NR                             | 860               | 2                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 233                                  | NR                             | 605               | 963                                  | NR                             | 735               | 105                                  | NR                             | 865               | 2                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 241                                  | NR                             | 610               | 981                                  | NR                             | 740               | 90                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 264                                  | NR                             | 615               | 997                                  | NR                             | 745               | 77                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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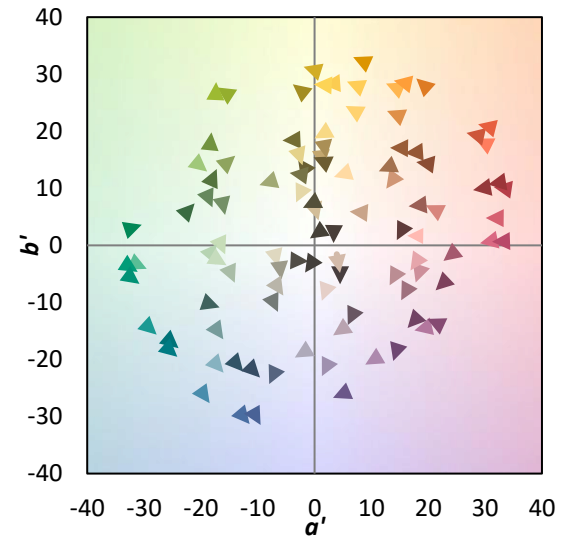
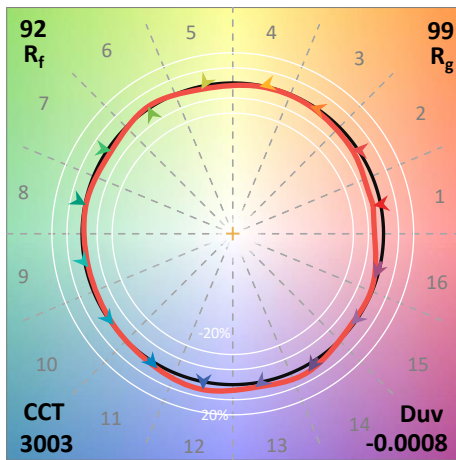
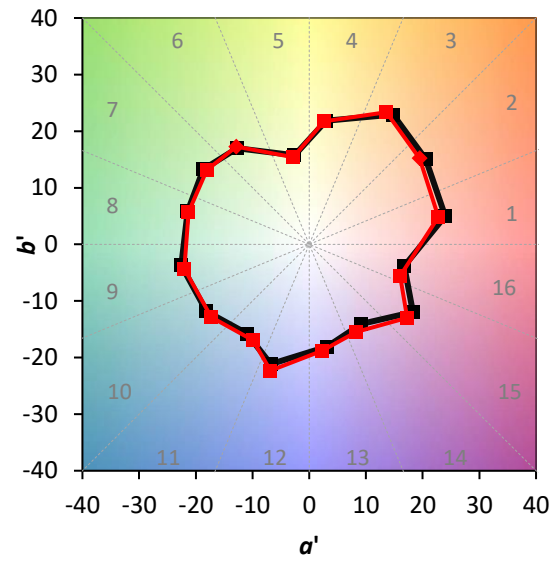
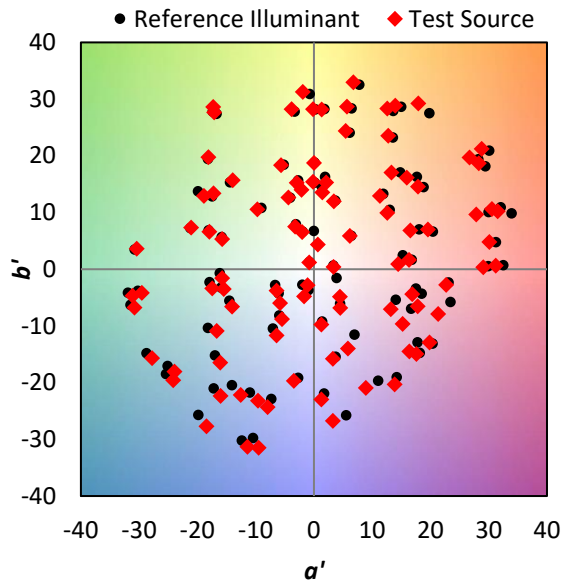
TM-30-18

### Summary

$R_f = 91.9$   
 $R_g = 99.2$   
 $\text{CIE } R_a = 93.2$   
 $R_9 = 59.0$

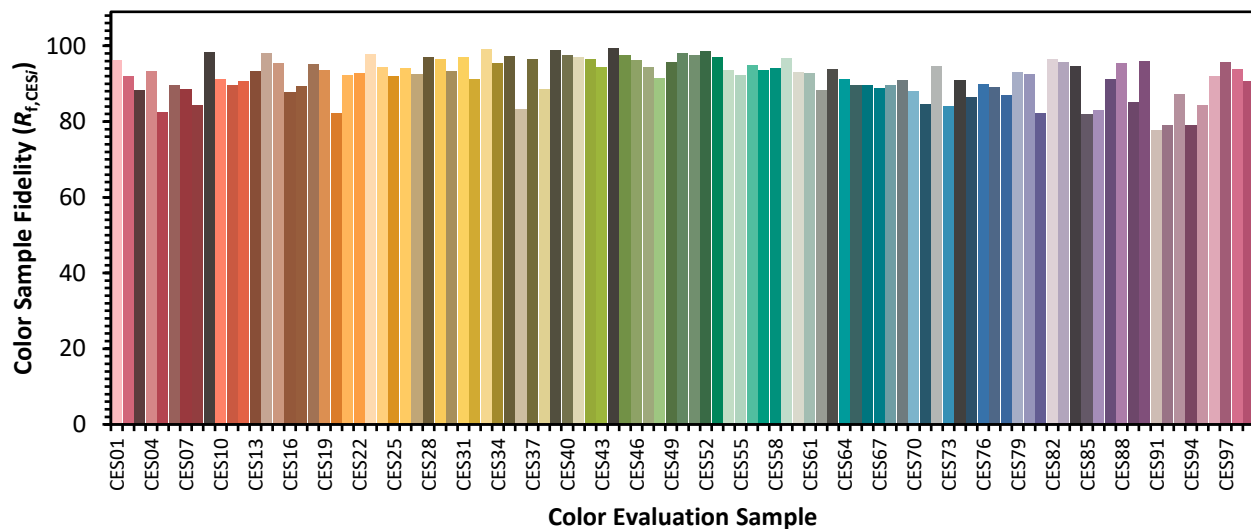


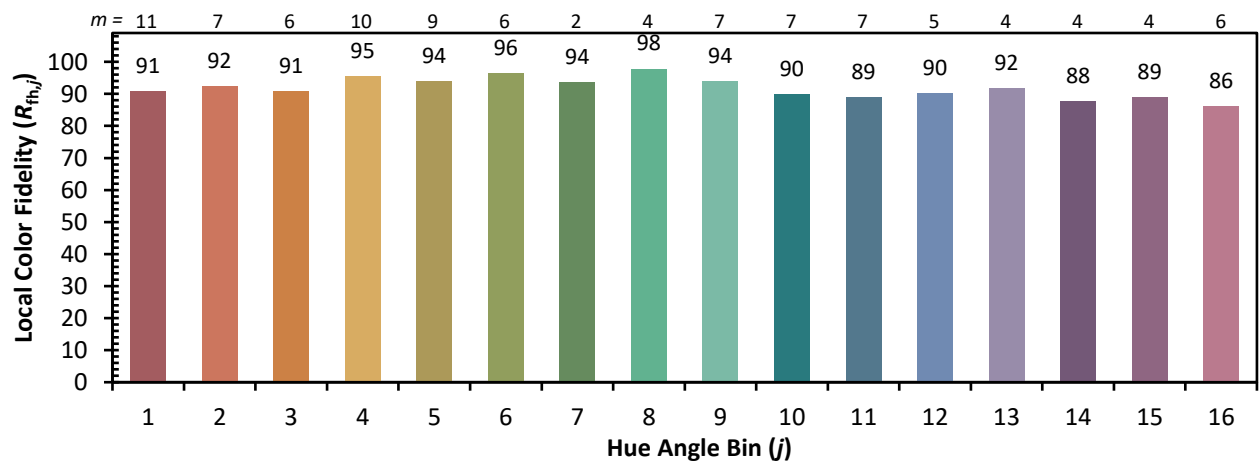
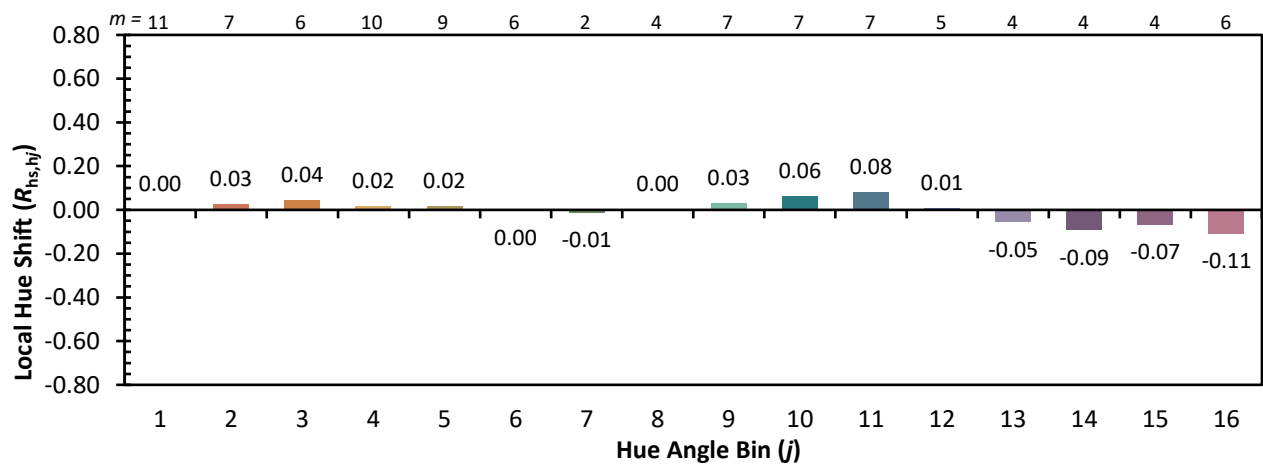
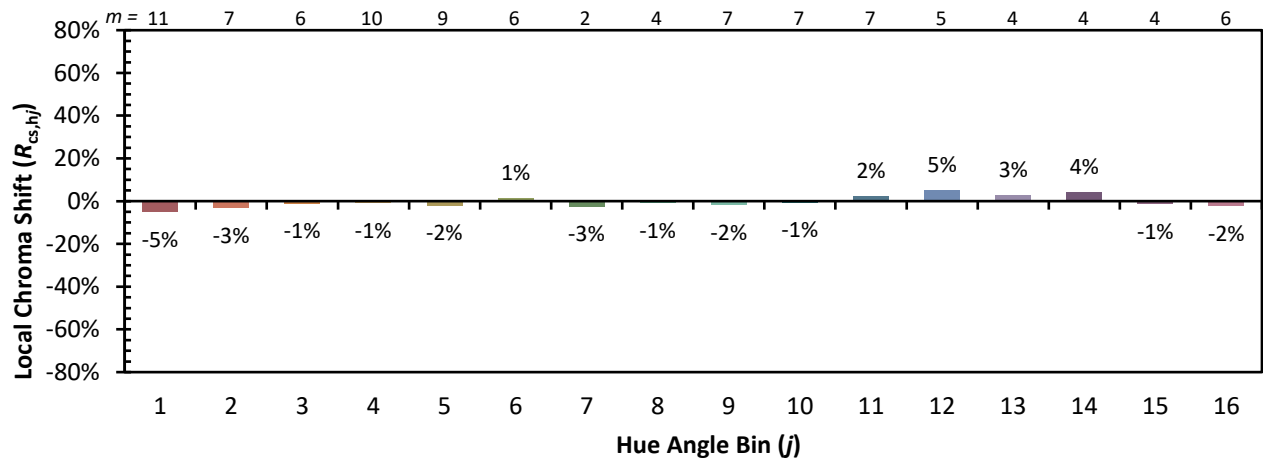
### Color Vector Graphics



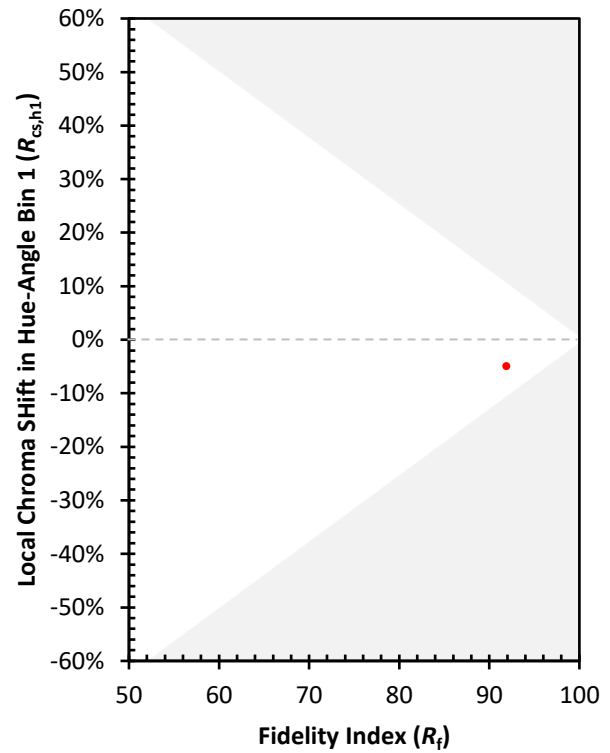
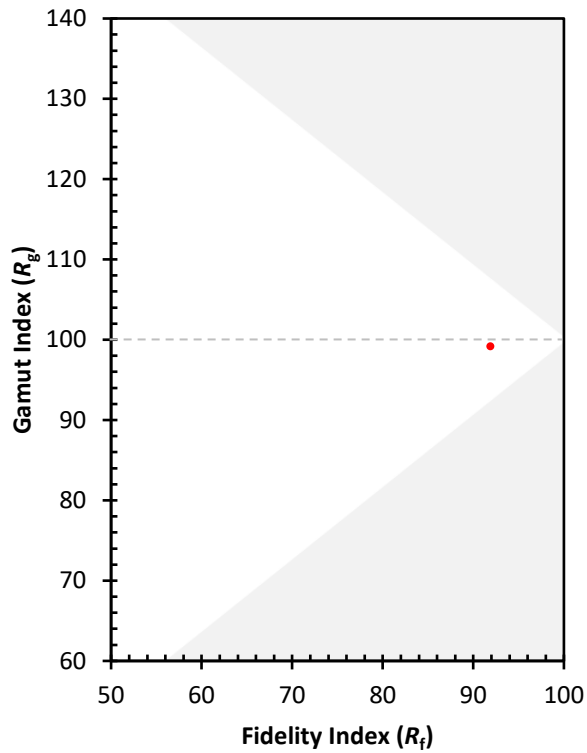
Individual Sample Fidelity Index ( $R_{f,i}$ )

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 94 | CES51 = 97 | CES76 = 90 |
| CES02 = 63 | CES27 = 92 | CES52 = 99 | CES77 = 89 |
| CES03 = 32 | CES28 = 97 | CES53 = 97 | CES78 = 87 |
| CES04 = 70 | CES29 = 97 | CES54 = 94 | CES79 = 93 |
| CES05 = 51 | CES30 = 93 | CES55 = 92 | CES80 = 93 |
| CES06 = 51 | CES31 = 97 | CES56 = 95 | CES81 = 82 |
| CES07 = 43 | CES32 = 91 | CES57 = 94 | CES82 = 97 |
| CES08 = 42 | CES33 = 99 | CES58 = 94 | CES83 = 96 |
| CES09 = 29 | CES34 = 95 | CES59 = 97 | CES84 = 95 |
| CES10 = 76 | CES35 = 97 | CES60 = 93 | CES85 = 82 |
| CES11 = 59 | CES36 = 83 | CES61 = 93 | CES86 = 83 |
| CES12 = 65 | CES37 = 97 | CES62 = 88 | CES87 = 91 |
| CES13 = 44 | CES38 = 89 | CES63 = 94 | CES88 = 96 |
| CES14 = 74 | CES39 = 99 | CES64 = 91 | CES89 = 85 |
| CES15 = 72 | CES40 = 98 | CES65 = 90 | CES90 = 96 |
| CES16 = 48 | CES41 = 97 | CES66 = 90 | CES91 = 78 |
| CES17 = 50 | CES42 = 96 | CES67 = 89 | CES92 = 79 |
| CES18 = 57 | CES43 = 94 | CES68 = 90 | CES93 = 87 |
| CES19 = 72 | CES44 = 99 | CES69 = 91 | CES94 = 79 |
| CES20 = 67 | CES45 = 98 | CES70 = 88 | CES95 = 84 |
| CES21 = 86 | CES46 = 96 | CES71 = 85 | CES96 = 92 |
| CES22 = 79 | CES47 = 94 | CES72 = 95 | CES97 = 96 |
| CES23 = 92 | CES48 = 91 | CES73 = 84 | CES98 = 94 |
| CES24 = 91 | CES49 = 96 | CES74 = 91 | CES99 = 91 |
| CES25 = 72 | CES50 = 98 | CES75 = 87 |            |



**Color Rendition by Hue-Angle Bin**


**Measure Comparisons**



(END OF REPORT)