

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: P1214752

Luminaire Tested: 22-ID2-35-CFD1-L950-U

Issue Date: 12/4/2025

**Test Information**

Test Method: LM-79-2019  
Report Number: P1214752  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2506-458-12)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/4/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: CORELITE  
Catalog Number: 22-ID2-35-CFD1-L950-U  
Description: 2X2 IN DEPTH TROFFER WITH 1INCH CUBE DROP LENS  
Light Source: 5000K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

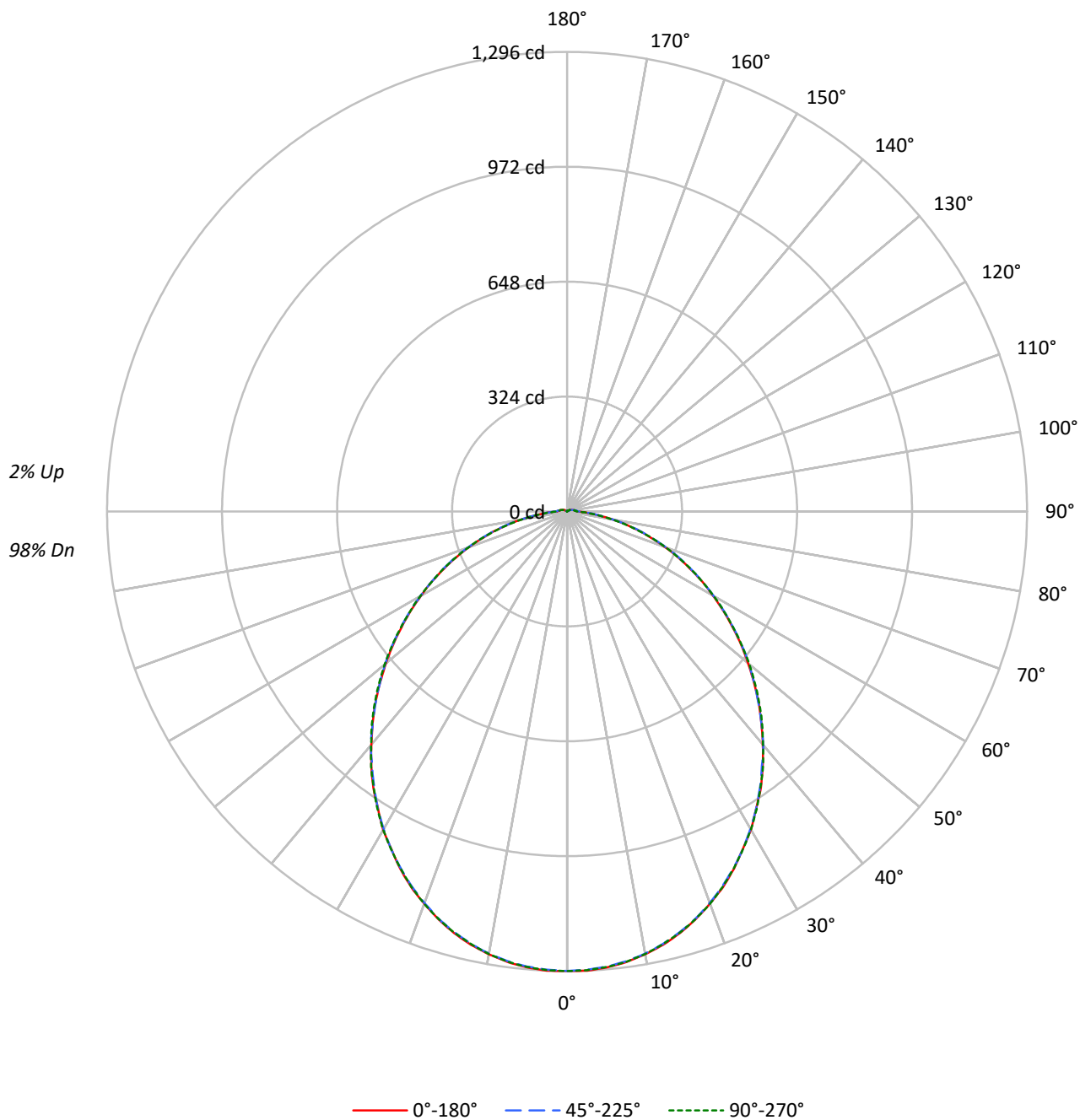
Lumens per Lamp: N/A  
Luminaire Lumens: 3418.2 lumens  
Efficiency: N/A  
Efficacy: 109.6 lumens/watt  
Spacing Criteria (0/90/45): 1.19 / 1.19 / 1.3  
Luminous Opening: Rectangular w/ Sides (W: 2' x L: 2' x H: 0.08')  
CIE Type: Direct

Input Watts (W): 31.2  
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: P1214752  
CATALOG NUMBER: 22-ID2-35-CFD1-L950-U

### Luminous Intensity Polar Plot



TEST NUMBER: P1214752

CATALOG NUMBER: 22-ID2-35-CFD1-L950-U

**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  | 50  | 30  | 10  |
| RCR |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 110 | 110 | 110 | 105 | 105 | 105 | 100 | 100 | 100 |
| 1   | 108 | 104 | 99  | 95  | 105 | 101 | 97  | 94  | 97  | 93  | 90  | 92  | 90  | 87  | 89  | 86  | 84  |
| 2   | 99  | 91  | 84  | 78  | 96  | 88  | 82  | 77  | 85  | 79  | 75  | 81  | 77  | 73  | 78  | 74  | 71  |
| 3   | 90  | 80  | 72  | 65  | 88  | 78  | 71  | 64  | 75  | 68  | 63  | 72  | 66  | 62  | 69  | 64  | 61  |
| 4   | 83  | 71  | 62  | 55  | 80  | 69  | 61  | 55  | 67  | 60  | 54  | 64  | 58  | 53  | 62  | 57  | 52  |
| 5   | 76  | 63  | 55  | 48  | 74  | 62  | 54  | 48  | 60  | 53  | 47  | 58  | 51  | 46  | 56  | 50  | 46  |
| 6   | 70  | 57  | 48  | 42  | 68  | 56  | 48  | 42  | 54  | 47  | 41  | 52  | 46  | 41  | 51  | 45  | 40  |
| 7   | 65  | 52  | 43  | 37  | 64  | 51  | 43  | 37  | 49  | 42  | 37  | 48  | 41  | 36  | 46  | 40  | 36  |
| 8   | 61  | 48  | 39  | 33  | 59  | 47  | 39  | 33  | 45  | 38  | 33  | 44  | 37  | 33  | 43  | 37  | 32  |
| 9   | 57  | 44  | 36  | 30  | 55  | 43  | 35  | 30  | 42  | 35  | 30  | 41  | 34  | 29  | 39  | 34  | 29  |
| 10  | 53  | 40  | 33  | 27  | 52  | 40  | 32  | 27  | 39  | 32  | 27  | 38  | 31  | 27  | 37  | 31  | 27  |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 3487 | 3487 | 3487 |
| 5°  | 3473 | 3462 | 3471 |
| 10° | 3440 | 3426 | 3438 |
| 15° | 3392 | 3370 | 3388 |
| 20° | 3322 | 3296 | 3323 |
| 25° | 3241 | 3209 | 3237 |
| 30° | 3148 | 3110 | 3146 |
| 35° | 3042 | 2995 | 3035 |
| 40° | 2915 | 2884 | 2918 |
| 45° | 2795 | 2746 | 2806 |
| 50° | 2660 | 2623 | 2679 |
| 55° | 2527 | 2483 | 2541 |
| 60° | 2389 | 2339 | 2404 |
| 65° | 2244 | 2190 | 2262 |
| 70° | 2080 | 2024 | 2092 |
| 75° | 1900 | 1818 | 1873 |
| 80° | 1643 | 1552 | 1622 |
| 85° | 1428 | 1320 | 1365 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 2806 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 122.3  | 3.6       |
| 10°-20°   | 346.3  | 10.1      |
| 20°-30°   | 511.2  | 15.0      |
| 30°-40°   | 593.5  | 17.4      |
| 40°-50°   | 589.5  | 17.2      |
| 50°-60°   | 512.0  | 15.0      |
| 60°-70°   | 381.8  | 11.2      |
| 70°-80°   | 223.5  | 6.5       |
| 80°-90°   | 79.9   | 2.3       |
| 90°-100°  | 27.2   | 0.8       |
| 100°-110° | 16.9   | 0.5       |
| 110°-120° | 9.0    | 0.3       |
| 120°-130° | 3.8    | 0.1       |
| 130°-140° | 1.1    | 0.0       |
| 140°-150° | 0.2    | 0.0       |
| 150°-160° | 0.0    | 0.0       |
| 160°-170° | 0.0    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-30°    | 979.8  | 28.7      |
| 0°-40°    | 1573.3 | 46.0      |
| 0°-60°    | 2674.7 | 78.3      |
| 0°-90°    | 3360.0 | 98.3      |
| 90°-120°  | 53.1   | 1.6       |
| 90°-150°  | 58.2   | 1.7       |
| 90°-180°  | 58.0   | 1.7       |
| 0°-180°   | 3418.2 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 1296 | 1296  | 1296 | 1296  | 1296 |      |
| 5°   | 1290 | 1289  | 1288 | 1288  | 1289 | 122  |
| 15°  | 1231 | 1229  | 1228 | 1228  | 1229 | 347  |
| 25°  | 1112 | 1111  | 1109 | 1110  | 1111 | 512  |
| 35°  | 952  | 949   | 948  | 949   | 950  | 594  |
| 45°  | 764  | 764   | 762  | 765   | 767  | 589  |
| 55°  | 570  | 572   | 572  | 573   | 572  | 510  |
| 65°  | 383  | 386   | 386  | 385   | 386  | 380  |
| 75°  | 210  | 211   | 212  | 211   | 207  | 222  |
| 85°  | 67   | 70    | 70   | 68    | 64   | 68   |
| 90°  | 29   | 31    | 32   | 31    | 28   | 18   |
| 95°  | 24   | 25    | 26   | 25    | 24   | 19   |
| 105° | 16   | 16    | 16   | 16    | 16   | 17   |
| 115° | 10   | 9     | 9    | 8     | 10   | 10   |
| 125° | 5    | 4     | 3    | 4     | 5    | 5    |
| 135° | 2    | 1     | 0    | 1     | 2    | 2    |
| 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°     | 1295.8 | 1295.8 | 1295.8 | 1295.8 | 1295.8 |
| 2.5°   | 1296.3 | 1294.6 | 1293.3 | 1293.3 | 1294.6 |
| 5°     | 1290.3 | 1289.4 | 1288.1 | 1287.7 | 1289.4 |
| 7.5°   | 1281.7 | 1280.4 | 1279.1 | 1279.1 | 1280.8 |
| 10°    | 1267.9 | 1267.1 | 1266.2 | 1266.6 | 1267.1 |
| 12.5°  | 1251.6 | 1249.9 | 1249.0 | 1249.0 | 1249.5 |
| 15°    | 1230.6 | 1229.3 | 1228.0 | 1228.4 | 1229.3 |
| 17.5°  | 1205.6 | 1205.2 | 1203.9 | 1204.4 | 1204.8 |
| 20°    | 1176.9 | 1176.0 | 1174.7 | 1175.6 | 1177.3 |
| 22.5°  | 1147.2 | 1144.7 | 1143.8 | 1144.2 | 1145.5 |
| 25°    | 1112.0 | 1111.2 | 1109.4 | 1110.3 | 1110.7 |
| 27.5°  | 1072.5 | 1075.5 | 1073.4 | 1072.9 | 1073.8 |
| 30°    | 1036.4 | 1033.8 | 1033.4 | 1033.4 | 1036.0 |
| 32.5°  | 991.7  | 991.7  | 992.2  | 992.6  | 994.3  |
| 35°    | 951.8  | 948.8  | 947.9  | 949.2  | 949.7  |
| 37.5°  | 905.8  | 905.4  | 902.4  | 905.0  | 907.1  |
| 40°    | 857.7  | 857.3  | 859.9  | 858.2  | 858.6  |
| 42.5°  | 810.5  | 810.9  | 810.5  | 812.6  | 813.9  |
| 45°    | 763.7  | 764.1  | 762.4  | 765.0  | 766.7  |
| 47.5°  | 714.3  | 716.0  | 715.1  | 716.0  | 718.6  |
| 50°    | 665.7  | 667.9  | 668.8  | 668.8  | 670.5  |
| 52.5°  | 618.1  | 619.8  | 621.1  | 621.5  | 621.1  |
| 55°    | 569.5  | 572.1  | 572.1  | 573.0  | 572.5  |
| 57.5°  | 522.3  | 525.3  | 524.9  | 525.3  | 524.4  |
| 60°    | 474.6  | 476.8  | 477.2  | 478.0  | 477.6  |
| 62.5°  | 429.9  | 430.8  | 431.2  | 431.2  | 429.5  |
| 65°    | 382.7  | 386.1  | 385.7  | 385.3  | 385.7  |
| 67.5°  | 338.0  | 340.2  | 341.9  | 340.6  | 340.2  |
| 70°    | 293.4  | 297.2  | 297.2  | 296.8  | 295.1  |
| 72.5°  | 249.5  | 253.0  | 253.0  | 253.0  | 252.6  |
| 75°    | 210.0  | 211.3  | 211.8  | 211.3  | 207.0  |
| 77.5°  | 168.8  | 170.1  | 171.8  | 171.4  | 167.9  |
| 80°    | 130.1  | 132.7  | 132.3  | 131.9  | 128.4  |
| 82.5°  | 95.4   | 98.4   | 99.2   | 97.9   | 95.4   |
| 85°    | 67.4   | 69.6   | 70.4   | 68.3   | 64.4   |
| 87.5°  | 44.7   | 46.8   | 47.2   | 46.4   | 43.8   |
| 90°    | 28.8   | 30.9   | 31.8   | 30.9   | 27.9   |
| 92.5°  | 26.2   | 27.5   | 28.3   | 27.5   | 25.3   |
| 95°    | 24.1   | 24.9   | 25.8   | 24.9   | 23.6   |
| 97.5°  | 21.9   | 22.3   | 23.2   | 22.3   | 21.5   |
| 100°   | 20.2   | 19.8   | 20.6   | 19.8   | 19.8   |
| 102.5° | 18.0   | 17.6   | 18.5   | 17.6   | 18.0   |
| 105°   | 16.3   | 15.9   | 16.3   | 15.5   | 15.9   |
| 107.5° | 14.6   | 13.7   | 14.2   | 13.3   | 14.6   |
| 110°   | 12.9   | 12.0   | 12.0   | 11.2   | 12.9   |

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**CANDELA DISTRIBUTION (continued):**

|        | 0°   | 22.5° | 45°  | 67.5° | 90°  |
|--------|------|-------|------|-------|------|
| 112.5° | 11.6 | 10.3  | 10.3 | 9.9   | 11.2 |
| 115°   | 9.9  | 8.6   | 8.6  | 8.2   | 9.9  |
| 117.5° | 8.6  | 7.3   | 6.9  | 7.3   | 8.6  |
| 120°   | 7.3  | 6.0   | 5.6  | 6.0   | 7.3  |
| 122.5° | 6.4  | 5.2   | 4.3  | 5.2   | 6.4  |
| 125°   | 5.2  | 4.3   | 3.0  | 4.3   | 5.2  |
| 127.5° | 4.3  | 3.0   | 1.7  | 3.4   | 4.3  |
| 130°   | 3.4  | 2.6   | 1.3  | 3.0   | 3.4  |
| 132.5° | 2.6  | 1.7   | 0.4  | 2.1   | 3.0  |
| 135°   | 1.7  | 1.3   | 0.4  | 1.3   | 2.1  |
| 137.5° | 1.3  | 0.9   | 0.4  | 0.9   | 1.7  |
| 140°   | 0.9  | 0.4   | 0.4  | 0.4   | 0.9  |
| 142.5° | 0.4  | 0.4   | 0.4  | 0.4   | 0.4  |
| 145°   | 0.4  | 0.4   | 0.4  | 0.4   | 0.4  |
| 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  |

TEST NUMBER: P1214752

CATALOG NUMBER: 22-ID2-35-CFD1-L950-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 | 14.97            | 16.54 | 15.36 | 16.89 | 17.25 | 14.97          | 16.55 | 15.37 | 16.90 | 17.26 |
|                 | 3H   | 16.68            | 18.10 | 17.08 | 18.47 | 18.87 | 16.69          | 18.12 | 17.10 | 18.48 | 18.88 |
|                 | 4H   | 17.32            | 18.66 | 17.75 | 19.04 | 19.46 | 17.33          | 18.67 | 17.75 | 19.05 | 19.47 |
|                 | 6H   | 17.79            | 19.04 | 18.23 | 19.44 | 19.87 | 17.79          | 19.04 | 18.23 | 19.44 | 19.87 |
|                 | 8H   | 17.95            | 19.14 | 18.40 | 19.56 | 20.00 | 17.95          | 19.13 | 18.40 | 19.56 | 20.00 |
|                 | 12H  | 18.06            | 19.20 | 18.52 | 19.62 | 20.09 | 18.06          | 19.20 | 18.51 | 19.61 | 20.08 |
| 4H              | 2H   | 15.56            | 16.90 | 15.98 | 17.28 | 17.70 | 15.56          | 16.90 | 15.99 | 17.29 | 17.70 |
|                 | 3H   | 17.49            | 18.61 | 17.92 | 19.04 | 19.49 | 17.49          | 18.62 | 17.93 | 19.05 | 19.49 |
|                 | 4H   | 18.25            | 19.27 | 18.71 | 19.72 | 20.20 | 18.26          | 19.28 | 18.72 | 19.73 | 20.20 |
|                 | 6H   | 18.85            | 19.75 | 19.33 | 20.22 | 20.71 | 18.85          | 19.75 | 19.33 | 20.22 | 20.71 |
|                 | 8H   | 19.06            | 19.89 | 19.55 | 20.37 | 20.87 | 19.06          | 19.89 | 19.54 | 20.37 | 20.87 |
|                 | 12H  | 19.22            | 19.98 | 19.73 | 20.48 | 20.99 | 19.21          | 19.97 | 19.72 | 20.47 | 20.98 |
| 8H              | 4H   | 18.54            | 19.38 | 19.03 | 19.85 | 20.36 | 18.55          | 19.39 | 19.04 | 19.86 | 20.36 |
|                 | 6H   | 19.26            | 19.96 | 19.78 | 20.48 | 20.99 | 19.26          | 19.96 | 19.78 | 20.48 | 20.99 |
|                 | 8H   | 19.54            | 20.17 | 20.08 | 20.71 | 21.23 | 19.54          | 20.17 | 20.08 | 20.70 | 21.23 |
|                 | 12H  | 19.79            | 20.35 | 20.33 | 20.87 | 21.47 | 19.78          | 20.33 | 20.31 | 20.86 | 21.45 |
| 12H             | 4H   | 18.57            | 19.33 | 19.08 | 19.83 | 20.34 | 18.58          | 19.33 | 19.09 | 19.84 | 20.35 |
|                 | 6H   | 19.32            | 19.94 | 19.85 | 20.48 | 21.00 | 19.32          | 19.94 | 19.85 | 20.48 | 21.00 |
|                 | 8H   | 19.66            | 20.21 | 20.19 | 20.73 | 21.33 | 19.65          | 20.21 | 20.19 | 20.73 | 21.33 |



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

Report Prepared for

Cooper Lighting Solutions

Corelite

Report Number: SP1-2506-458-13

Test Date: 08/27/2025

Luminaire Tested: 22ID2-55-CFR1-L950-U

Data in this report applies to families of products including 22ID2-55-CFR1-L950-U

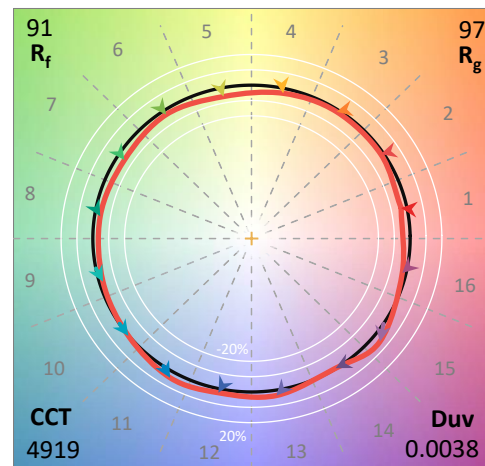
### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2506-458-13  
 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-L950-U**  
 Description: 2X2 CGTX WITH INDEPTH FRAME AND CFR1 LENS - 5500 LUMEN 5000K 90CRI

### Spectral Parameters

CCT (K): 4919  
 CIE  $u'$ : 0.2096  
 CIE  $v'$ : 0.4901  
 Duv: 0.0038  
 CIE x: 0.3483  
 CIE y: 0.3619  
 CIE z: 0.2898  
 Peak Wavelength (nm): 453  
 Dominant Wavelength (nm): 570  
 Purity: 13.10873  
 R<sub>f</sub>: 90.8  
 R<sub>g</sub>: 97.4

CRI (Ra): 94.0  
 R1: 94.8  
 R2: 97.7  
 R3: 98.4  
 R4: 90.8  
 R5: 92.2  
 R6: 94.3  
 R7: 94.0  
 R8: 90.0  
 R9: 77.7  
 R10: 93.1  
 R11: 92.0  
 R12: 65.9  
 R13: 95.9  
 R14: 99.0  
 R15: 91.4



### Test Conditions

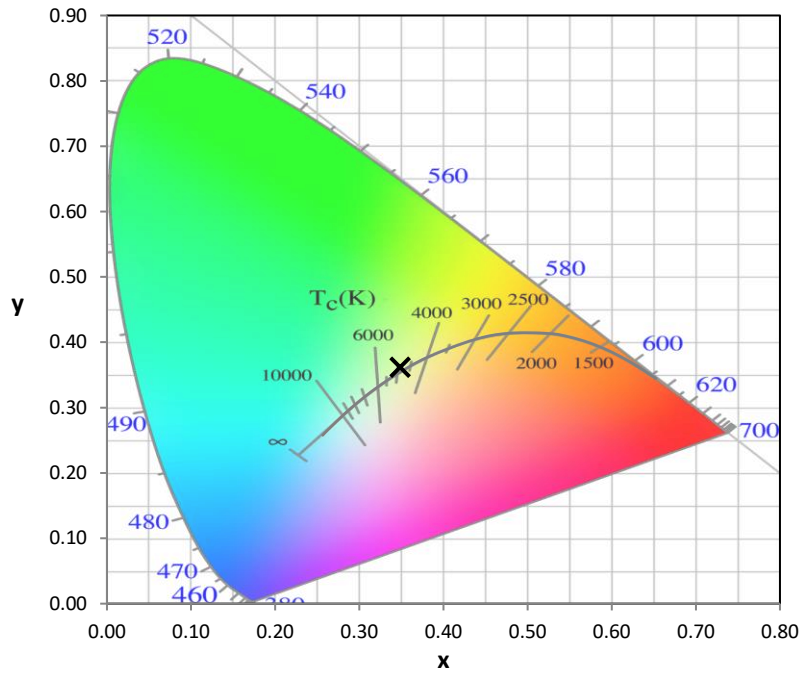
Stabilization Time: M  
 Operation Time: 1H 0M  
 Sphere Temperature (°C): 25.0

REPORT NUMBER: SP1-2506-458-13

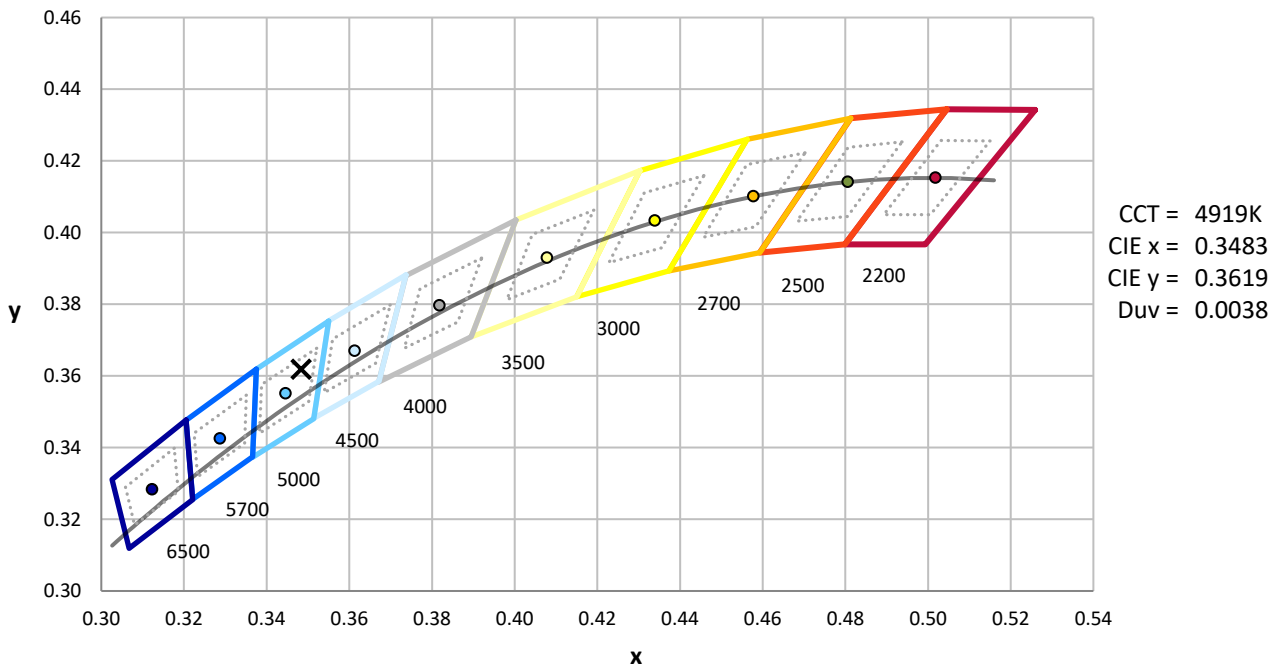
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date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



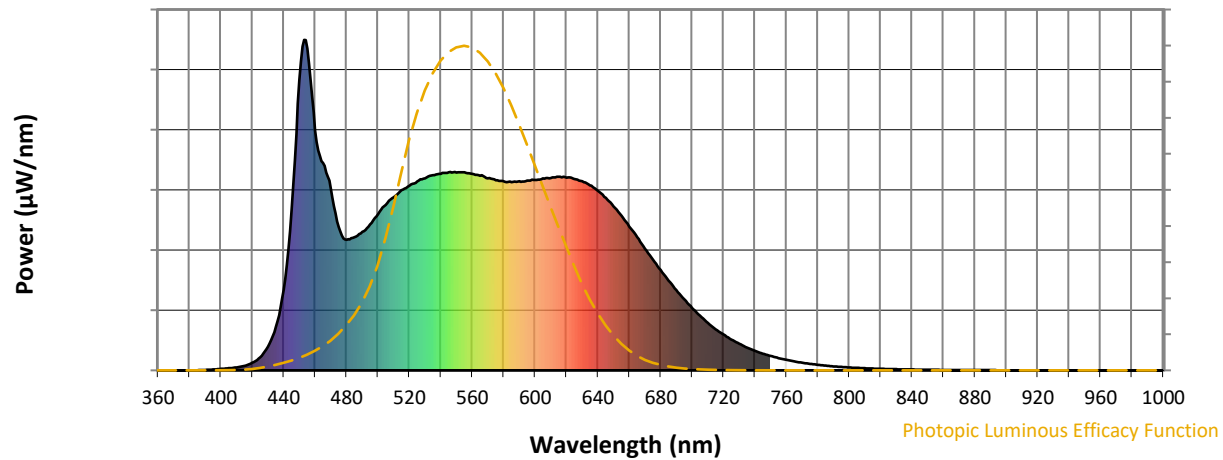
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 5000K 4-step quadrangle

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### Photopic Flux vs. Wavelength

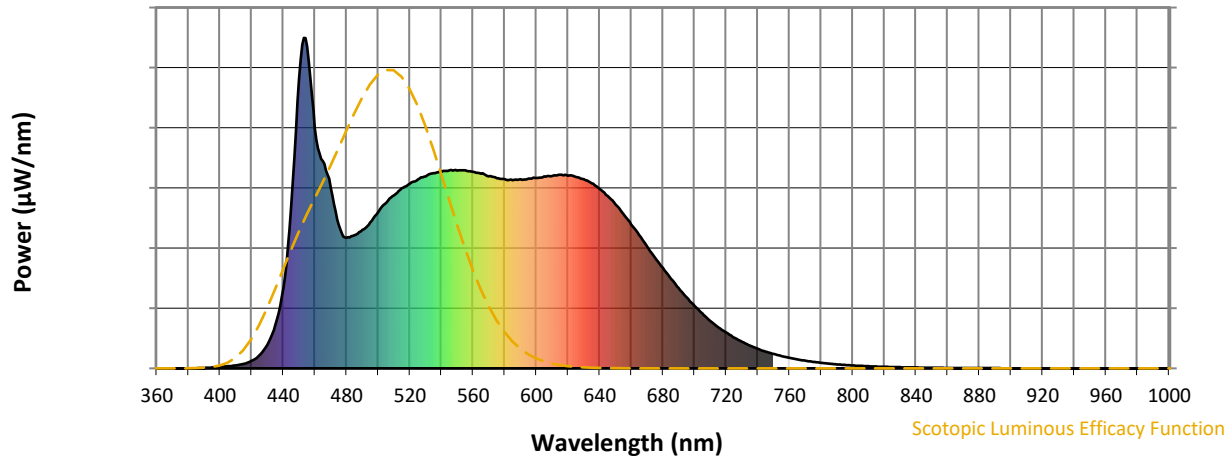


### Photopic Lumens: NR

| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360               | 0                                    | NR                             | 490               | 419                                  | NR                             | 620               | 583                                  | NR                             | 750               | 44                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 441                                  | NR                             | 625               | 580                                  | NR                             | 755               | 37                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 472                                  | NR                             | 630               | 572                                  | NR                             | 760               | 32                                   | NR                             | 890               | 1                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 501                                  | NR                             | 635               | 559                                  | NR                             | 765               | 27                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 524                                  | NR                             | 640               | 543                                  | NR                             | 770               | 23                                   | NR                             | 900               | 0                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 545                                  | NR                             | 645               | 522                                  | NR                             | 775               | 20                                   | NR                             | 905               | 0                                    | NR                             |
| 390               | 1                                    | NR                             | 520               | 559                                  | NR                             | 650               | 496                                  | NR                             | 780               | 17                                   | NR                             | 910               | 0                                    | NR                             |
| 395               | 3                                    | NR                             | 525               | 572                                  | NR                             | 655               | 468                                  | NR                             | 785               | 14                                   | NR                             | 915               | 0                                    | NR                             |
| 400               | 4                                    | NR                             | 530               | 581                                  | NR                             | 660               | 435                                  | NR                             | 790               | 12                                   | NR                             | 920               | 0                                    | NR                             |
| 405               | 7                                    | NR                             | 535               | 590                                  | NR                             | 665               | 403                                  | NR                             | 795               | 10                                   | NR                             | 925               | 0                                    | NR                             |
| 410               | 9                                    | NR                             | 540               | 595                                  | NR                             | 670               | 368                                  | NR                             | 800               | 9                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 14                                   | NR                             | 545               | 599                                  | NR                             | 675               | 335                                  | NR                             | 805               | 8                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 23                                   | NR                             | 550               | 599                                  | NR                             | 680               | 304                                  | NR                             | 810               | 6                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 40                                   | NR                             | 555               | 599                                  | NR                             | 685               | 271                                  | NR                             | 815               | 6                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 72                                   | NR                             | 560               | 595                                  | NR                             | 690               | 243                                  | NR                             | 820               | 5                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 132                                  | NR                             | 565               | 589                                  | NR                             | 695               | 215                                  | NR                             | 825               | 4                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 243                                  | NR                             | 570               | 581                                  | NR                             | 700               | 189                                  | NR                             | 830               | 3                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 488                                  | NR                             | 575               | 575                                  | NR                             | 705               | 165                                  | NR                             | 835               | 3                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 879                                  | NR                             | 580               | 573                                  | NR                             | 710               | 144                                  | NR                             | 840               | 3                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 974                                  | NR                             | 585               | 570                                  | NR                             | 715               | 124                                  | NR                             | 845               | 2                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 726                                  | NR                             | 590               | 572                                  | NR                             | 720               | 108                                  | NR                             | 850               | 2                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 627                                  | NR                             | 595               | 574                                  | NR                             | 725               | 93                                   | NR                             | 855               | 2                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 546                                  | NR                             | 600               | 576                                  | NR                             | 730               | 80                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 434                                  | NR                             | 605               | 581                                  | NR                             | 735               | 69                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 395                                  | NR                             | 610               | 582                                  | NR                             | 740               | 59                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 403                                  | NR                             | 615               | 586                                  | NR                             | 745               | 51                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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### Scotopic Flux vs. Wavelength



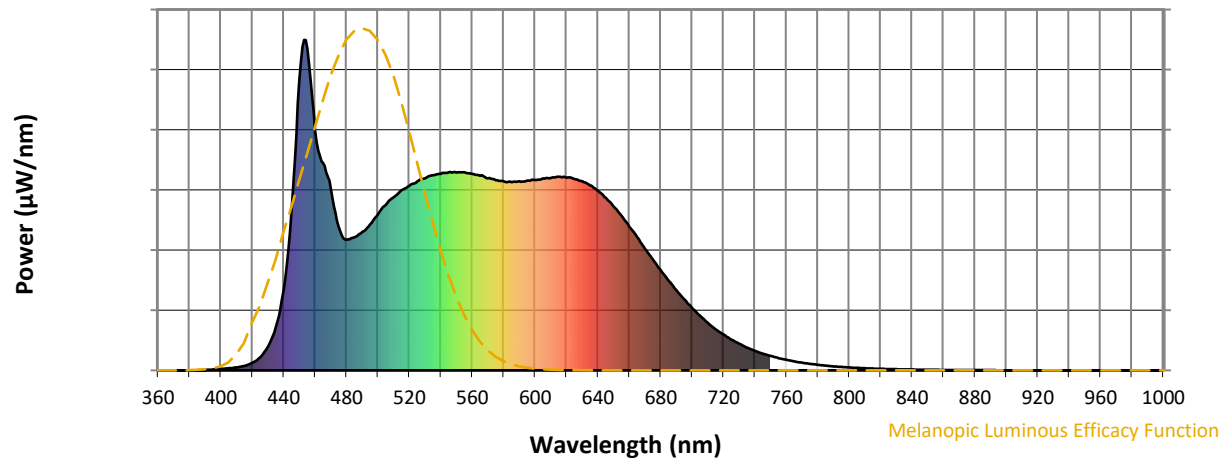
Scotopic Lumens: NR

S/P: 2.09

| 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       | 419                         | NR               | 620       | 583                         | NR               | 750       | 44                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 441                         | NR               | 625       | 580                         | NR               | 755       | 37                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 472                         | NR               | 630       | 572                         | NR               | 760       | 32                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 501                         | NR               | 635       | 559                         | NR               | 765       | 27                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 524                         | NR               | 640       | 543                         | NR               | 770       | 23                          | NR               | 900       | 0                           | NR               |
| 385       | 0                           | NR               | 515       | 545                         | NR               | 645       | 522                         | NR               | 775       | 20                          | NR               | 905       | 0                           | NR               |
| 390       | 1                           | NR               | 520       | 559                         | NR               | 650       | 496                         | NR               | 780       | 17                          | NR               | 910       | 0                           | NR               |
| 395       | 3                           | NR               | 525       | 572                         | NR               | 655       | 468                         | NR               | 785       | 14                          | NR               | 915       | 0                           | NR               |
| 400       | 4                           | NR               | 530       | 581                         | NR               | 660       | 435                         | NR               | 790       | 12                          | NR               | 920       | 0                           | NR               |
| 405       | 7                           | NR               | 535       | 590                         | NR               | 665       | 403                         | NR               | 795       | 10                          | NR               | 925       | 0                           | NR               |
| 410       | 9                           | NR               | 540       | 595                         | NR               | 670       | 368                         | NR               | 800       | 9                           | NR               | 930       | 0                           | NR               |
| 415       | 14                          | NR               | 545       | 599                         | NR               | 675       | 335                         | NR               | 805       | 8                           | NR               | 935       | 0                           | NR               |
| 420       | 23                          | NR               | 550       | 599                         | NR               | 680       | 304                         | NR               | 810       | 6                           | NR               | 940       | 0                           | NR               |
| 425       | 40                          | NR               | 555       | 599                         | NR               | 685       | 271                         | NR               | 815       | 6                           | NR               | 945       | 0                           | NR               |
| 430       | 72                          | NR               | 560       | 595                         | NR               | 690       | 243                         | NR               | 820       | 5                           | NR               | 950       | 0                           | NR               |
| 435       | 132                         | NR               | 565       | 589                         | NR               | 695       | 215                         | NR               | 825       | 4                           | NR               | 955       | 0                           | NR               |
| 440       | 243                         | NR               | 570       | 581                         | NR               | 700       | 189                         | NR               | 830       | 3                           | NR               | 960       | 0                           | NR               |
| 445       | 488                         | NR               | 575       | 575                         | NR               | 705       | 165                         | NR               | 835       | 3                           | NR               | 965       | 0                           | NR               |
| 450       | 879                         | NR               | 580       | 573                         | NR               | 710       | 144                         | NR               | 840       | 3                           | NR               | 970       | 0                           | NR               |
| 455       | 974                         | NR               | 585       | 570                         | NR               | 715       | 124                         | NR               | 845       | 2                           | NR               | 975       | 0                           | NR               |
| 460       | 726                         | NR               | 590       | 572                         | NR               | 720       | 108                         | NR               | 850       | 2                           | NR               | 980       | 0                           | NR               |
| 465       | 627                         | NR               | 595       | 574                         | NR               | 725       | 93                          | NR               | 855       | 2                           | NR               | 985       | 0                           | NR               |
| 470       | 546                         | NR               | 600       | 576                         | NR               | 730       | 80                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 434                         | NR               | 605       | 581                         | NR               | 735       | 69                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 395                         | NR               | 610       | 582                         | NR               | 740       | 59                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 403                         | NR               | 615       | 586                         | NR               | 745       | 51                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 4.55

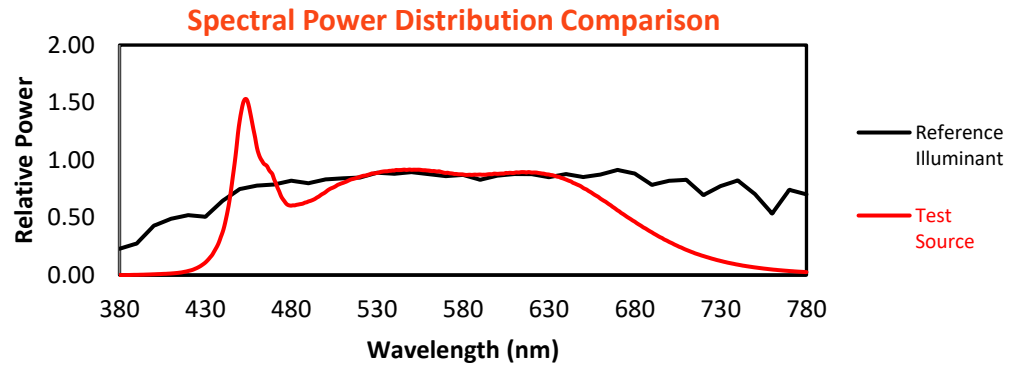
| λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 419                         | NR               | 620       | 583                         | NR               | 750       | 44                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 441                         | NR               | 625       | 580                         | NR               | 755       | 37                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 472                         | NR               | 630       | 572                         | NR               | 760       | 32                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 501                         | NR               | 635       | 559                         | NR               | 765       | 27                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 524                         | NR               | 640       | 543                         | NR               | 770       | 23                          | NR               | 900       | 0                           | NR               |
| 385       | 0                           | NR               | 515       | 545                         | NR               | 645       | 522                         | NR               | 775       | 20                          | NR               | 905       | 0                           | NR               |
| 390       | 1                           | NR               | 520       | 559                         | NR               | 650       | 496                         | NR               | 780       | 17                          | NR               | 910       | 0                           | NR               |
| 395       | 3                           | NR               | 525       | 572                         | NR               | 655       | 468                         | NR               | 785       | 14                          | NR               | 915       | 0                           | NR               |
| 400       | 4                           | NR               | 530       | 581                         | NR               | 660       | 435                         | NR               | 790       | 12                          | NR               | 920       | 0                           | NR               |
| 405       | 7                           | NR               | 535       | 590                         | NR               | 665       | 403                         | NR               | 795       | 10                          | NR               | 925       | 0                           | NR               |
| 410       | 9                           | NR               | 540       | 595                         | NR               | 670       | 368                         | NR               | 800       | 9                           | NR               | 930       | 0                           | NR               |
| 415       | 14                          | NR               | 545       | 599                         | NR               | 675       | 335                         | NR               | 805       | 8                           | NR               | 935       | 0                           | NR               |
| 420       | 23                          | NR               | 550       | 599                         | NR               | 680       | 304                         | NR               | 810       | 6                           | NR               | 940       | 0                           | NR               |
| 425       | 40                          | NR               | 555       | 599                         | NR               | 685       | 271                         | NR               | 815       | 6                           | NR               | 945       | 0                           | NR               |
| 430       | 72                          | NR               | 560       | 595                         | NR               | 690       | 243                         | NR               | 820       | 5                           | NR               | 950       | 0                           | NR               |
| 435       | 132                         | NR               | 565       | 589                         | NR               | 695       | 215                         | NR               | 825       | 4                           | NR               | 955       | 0                           | NR               |
| 440       | 243                         | NR               | 570       | 581                         | NR               | 700       | 189                         | NR               | 830       | 3                           | NR               | 960       | 0                           | NR               |
| 445       | 488                         | NR               | 575       | 575                         | NR               | 705       | 165                         | NR               | 835       | 3                           | NR               | 965       | 0                           | NR               |
| 450       | 879                         | NR               | 580       | 573                         | NR               | 710       | 144                         | NR               | 840       | 3                           | NR               | 970       | 0                           | NR               |
| 455       | 974                         | NR               | 585       | 570                         | NR               | 715       | 124                         | NR               | 845       | 2                           | NR               | 975       | 0                           | NR               |
| 460       | 726                         | NR               | 590       | 572                         | NR               | 720       | 108                         | NR               | 850       | 2                           | NR               | 980       | 0                           | NR               |
| 465       | 627                         | NR               | 595       | 574                         | NR               | 725       | 93                          | NR               | 855       | 2                           | NR               | 985       | 0                           | NR               |
| 470       | 546                         | NR               | 600       | 576                         | NR               | 730       | 80                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 434                         | NR               | 605       | 581                         | NR               | 735       | 69                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 395                         | NR               | 610       | 582                         | NR               | 740       | 59                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 403                         | NR               | 615       | 586                         | NR               | 745       | 51                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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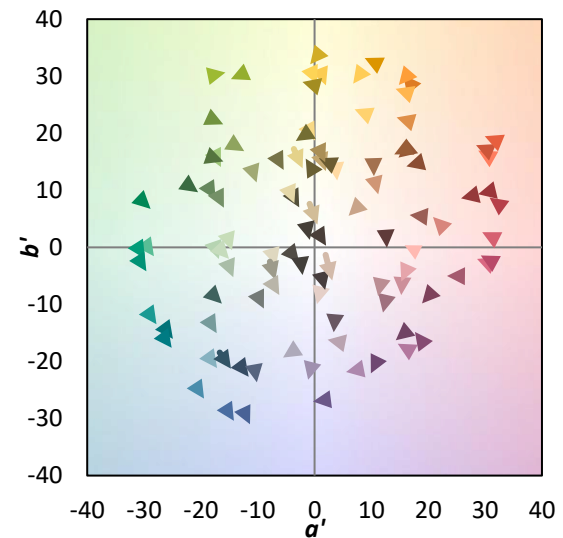
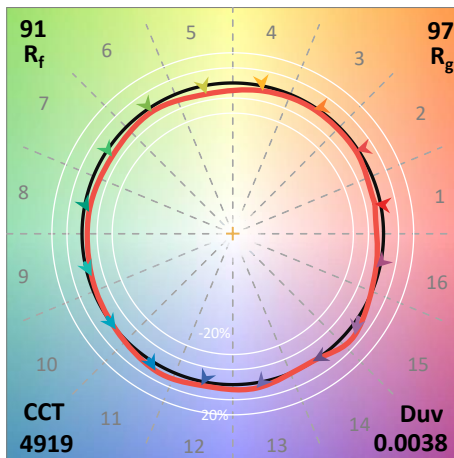
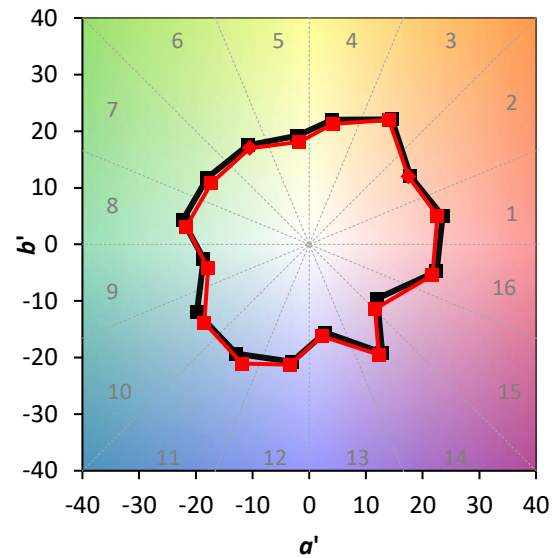
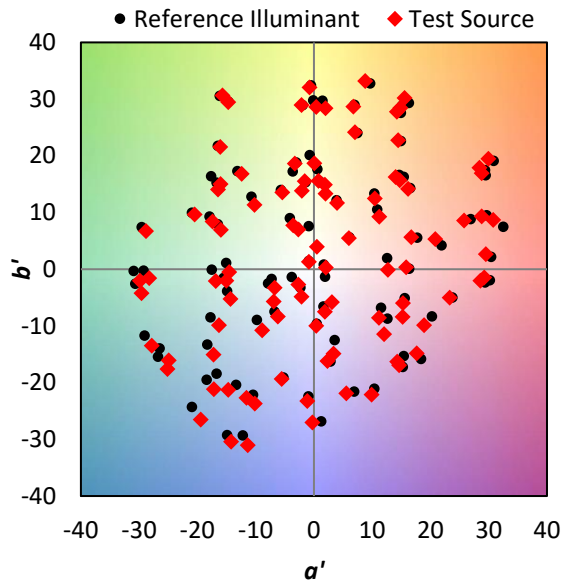
TM-30-18

### Summary

$R_f = 90.8$   
 $R_g = 97.4$   
 $CIE R_a = 94.0$   
 $R_9 = 77.7$



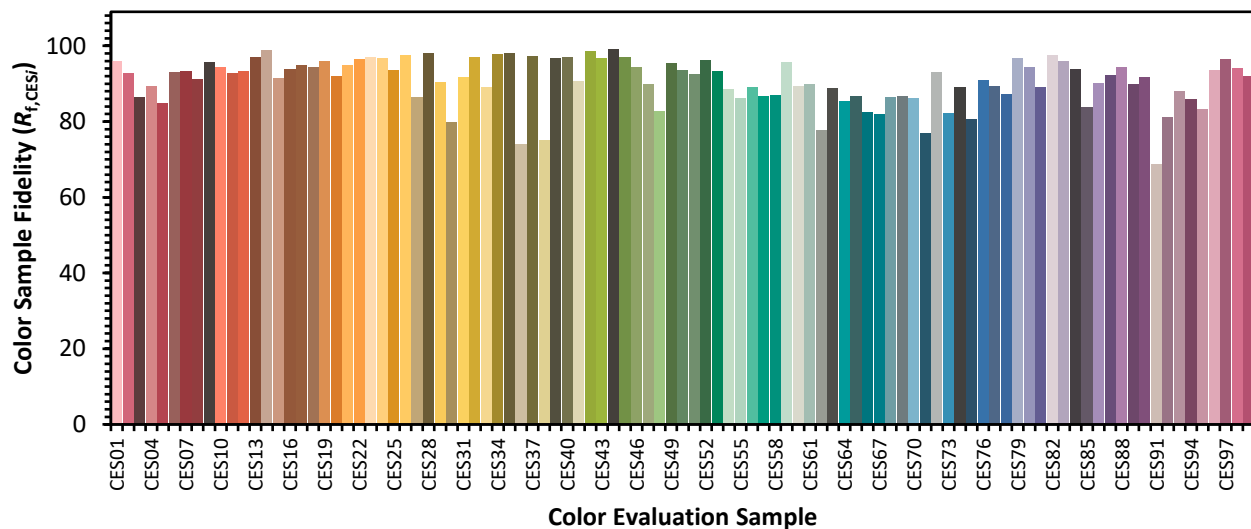
### Color Vector Graphics



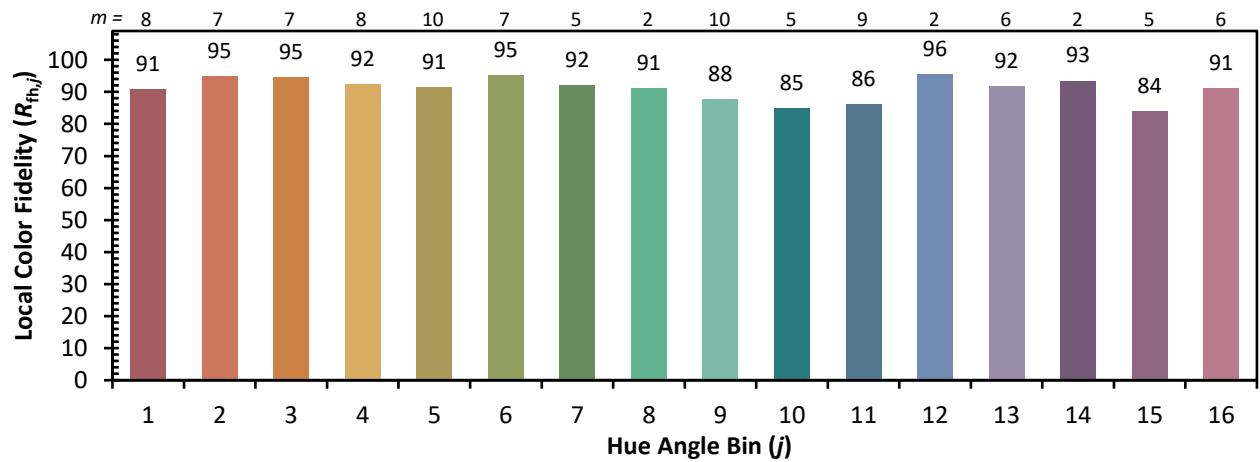
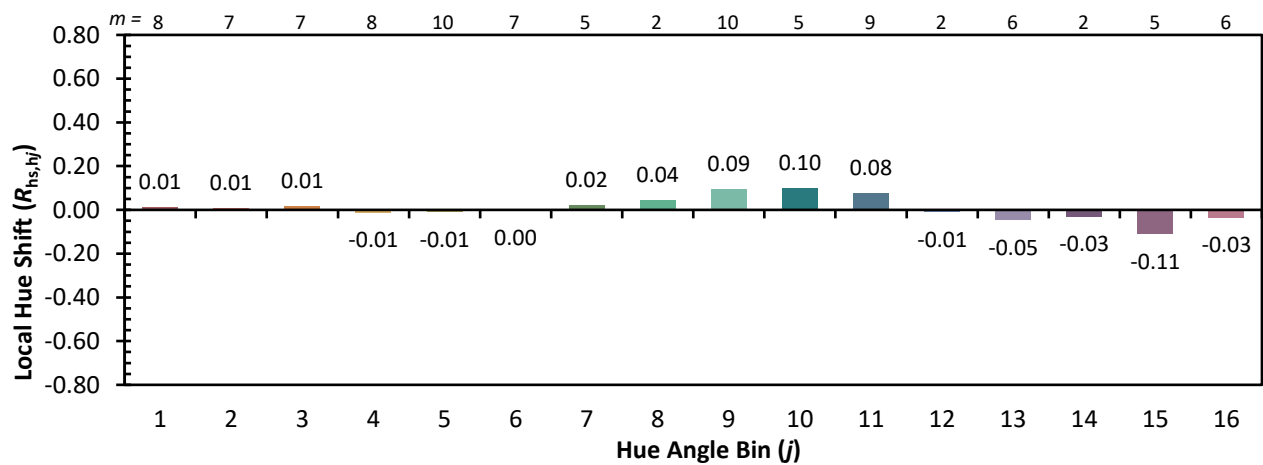
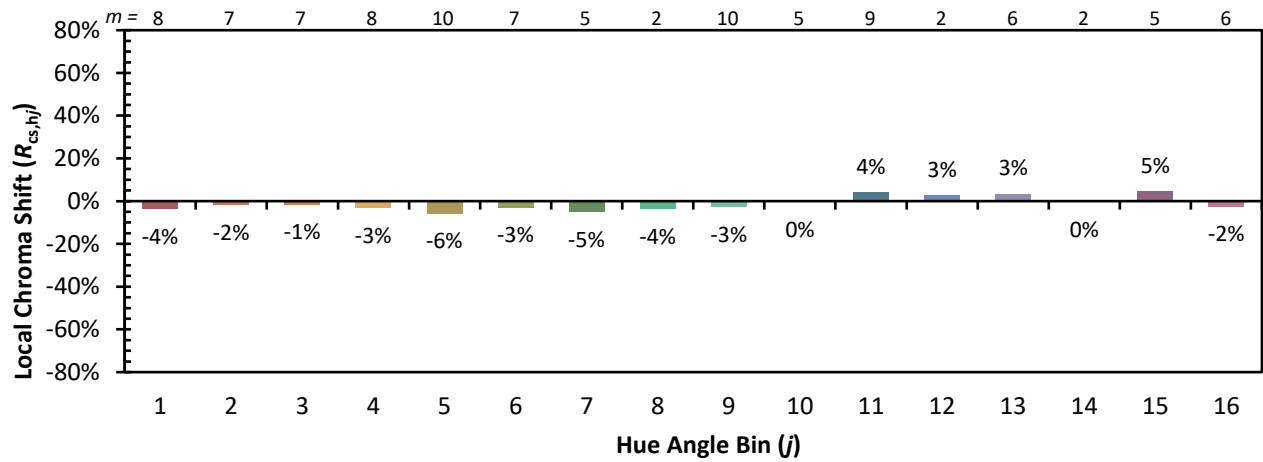


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

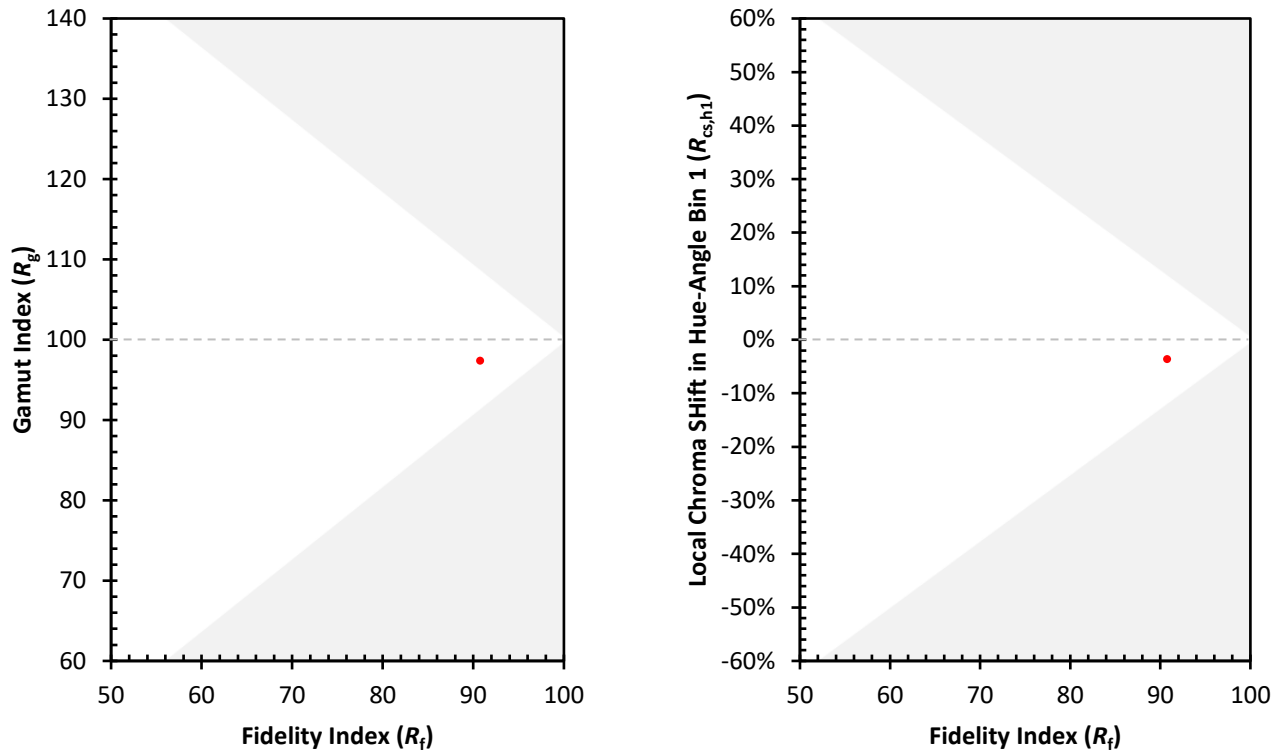
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 98 | CES51 = 93 | CES76 = 91 |
| CES02 = 61 | CES27 = 86 | CES52 = 96 | CES77 = 89 |
| CES03 = 31 | CES28 = 98 | CES53 = 93 | CES78 = 87 |
| CES04 = 68 | CES29 = 90 | CES54 = 89 | CES79 = 97 |
| CES05 = 48 | CES30 = 80 | CES55 = 86 | CES80 = 94 |
| CES06 = 50 | CES31 = 92 | CES56 = 89 | CES81 = 89 |
| CES07 = 41 | CES32 = 97 | CES57 = 87 | CES82 = 97 |
| CES08 = 40 | CES33 = 89 | CES58 = 87 | CES83 = 96 |
| CES09 = 29 | CES34 = 98 | CES59 = 96 | CES84 = 94 |
| CES10 = 73 | CES35 = 98 | CES60 = 89 | CES85 = 84 |
| CES11 = 56 | CES36 = 74 | CES61 = 90 | CES86 = 90 |
| CES12 = 62 | CES37 = 97 | CES62 = 78 | CES87 = 92 |
| CES13 = 42 | CES38 = 75 | CES63 = 89 | CES88 = 95 |
| CES14 = 74 | CES39 = 97 | CES64 = 85 | CES89 = 90 |
| CES15 = 71 | CES40 = 97 | CES65 = 87 | CES90 = 92 |
| CES16 = 47 | CES41 = 91 | CES66 = 82 | CES91 = 69 |
| CES17 = 48 | CES42 = 99 | CES67 = 82 | CES92 = 81 |
| CES18 = 56 | CES43 = 97 | CES68 = 86 | CES93 = 88 |
| CES19 = 70 | CES44 = 99 | CES69 = 87 | CES94 = 86 |
| CES20 = 65 | CES45 = 97 | CES70 = 86 | CES95 = 83 |
| CES21 = 84 | CES46 = 94 | CES71 = 77 | CES96 = 94 |
| CES22 = 77 | CES47 = 90 | CES72 = 93 | CES97 = 97 |
| CES23 = 91 | CES48 = 83 | CES73 = 82 | CES98 = 94 |
| CES24 = 89 | CES49 = 95 | CES74 = 89 | CES99 = 92 |
| CES25 = 70 | CES50 = 94 | CES75 = 81 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)