

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: P1216214

Luminaire Tested: 24-ID2-72-CNV-L935-U

Issue Date: 12/5/2025

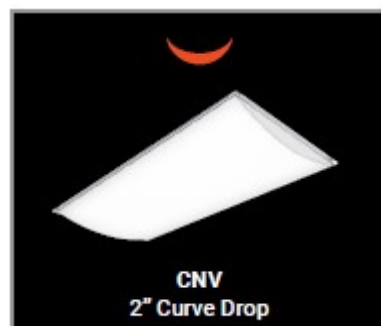
**Test Information**

Test Method: LM-79-2019  
Report Number: P1216214  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2508-510-5)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/5/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: CORELITE  
Catalog Number: 24-ID2-72-CNV-L935-U  
Description: 2X4 IN DEPTH TROFFER WITH 2INCH CURVE DROP  
Light Source: 3500K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

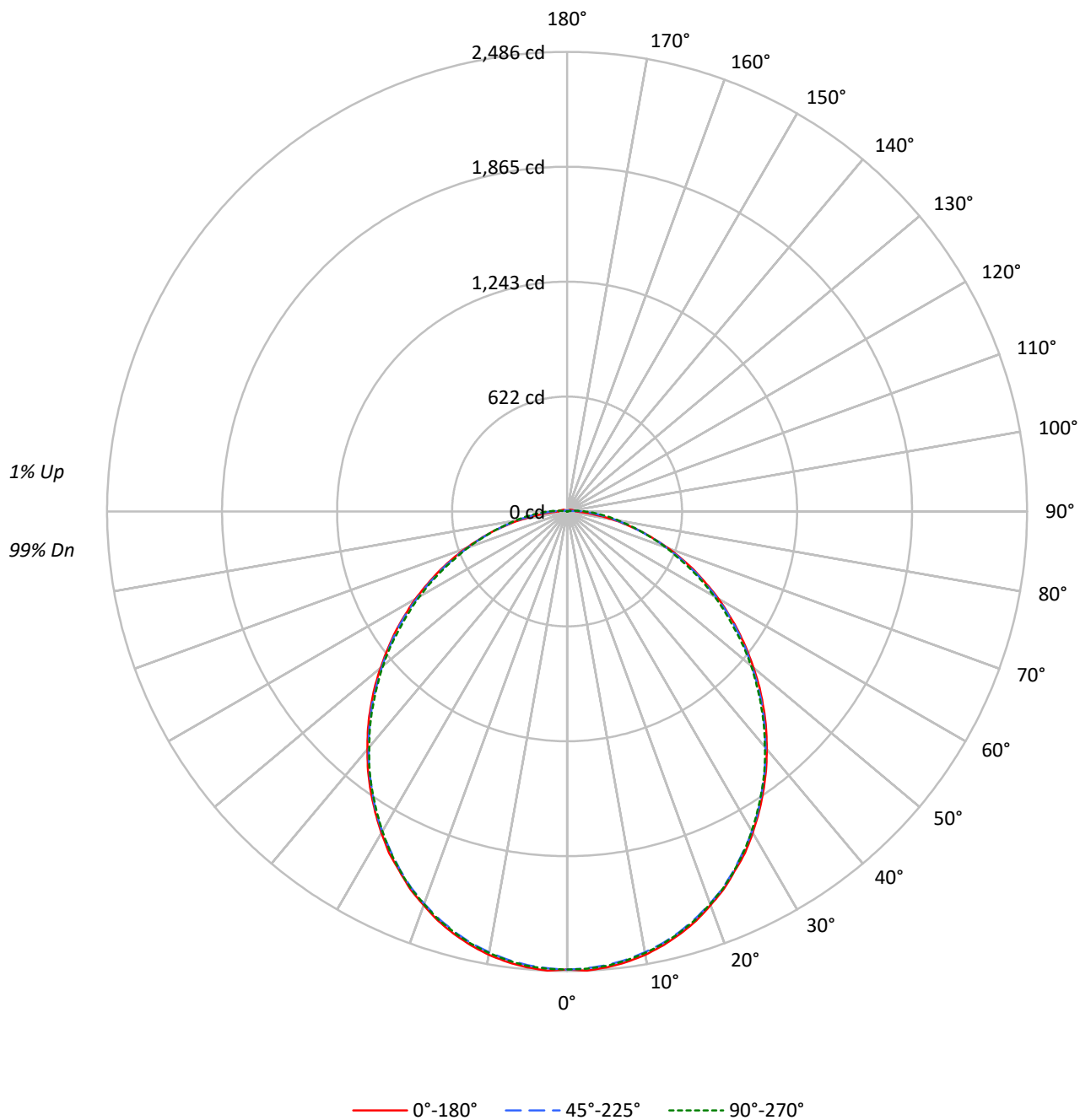
Lumens per Lamp: N/A  
Luminaire Lumens: 6617.3 lumens  
Efficiency: N/A  
Efficacy: 102.3 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.2 / 1.31  
Luminous Opening: Rectangular w/ Sides (W: 2' x L: 4' x H: 0.16')  
CIE Type: Direct

Input Watts (W): 64.7  
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: P1216214  
CATALOG NUMBER: 24-ID2-72-CNV-L935-U

### Luminous Intensity Polar Plot



TEST NUMBER: P1216214

CATALOG NUMBER: 24-ID2-72-CNV-L935-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  |  | 0  |
| RCR |     |     |     |     |     |     |     |     |     |     |     |  |     |     |     |  |    |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 110 | 110 | 110 |  | 106 | 106 | 106 |  | 99 |
| 1   | 108 | 104 | 99  | 95  | 105 | 101 | 97  | 94  | 97  | 93  | 90  |  | 93  | 90  | 87  |  | 82 |
| 2   | 99  | 90  | 84  | 78  | 96  | 88  | 82  | 77  | 85  | 79  | 75  |  | 81  | 77  | 73  |  | 69 |
| 3   | 90  | 80  | 71  | 65  | 87  | 78  | 70  | 64  | 75  | 68  | 63  |  | 72  | 66  | 62  |  | 58 |
| 4   | 83  | 71  | 62  | 55  | 80  | 69  | 61  | 55  | 67  | 60  | 54  |  | 64  | 58  | 53  |  | 50 |
| 5   | 76  | 63  | 54  | 48  | 74  | 62  | 54  | 47  | 60  | 52  | 47  |  | 58  | 51  | 46  |  | 43 |
| 6   | 70  | 57  | 48  | 42  | 68  | 56  | 48  | 42  | 54  | 47  | 41  |  | 52  | 46  | 41  |  | 38 |
| 7   | 65  | 52  | 43  | 37  | 63  | 51  | 43  | 37  | 49  | 42  | 36  |  | 48  | 41  | 36  |  | 34 |
| 8   | 61  | 47  | 39  | 33  | 59  | 47  | 39  | 33  | 45  | 38  | 33  |  | 44  | 37  | 32  |  | 30 |
| 9   | 57  | 44  | 35  | 30  | 55  | 43  | 35  | 30  | 42  | 35  | 30  |  | 40  | 34  | 29  |  | 27 |
| 10  | 53  | 40  | 32  | 27  | 52  | 40  | 32  | 27  | 39  | 32  | 27  |  | 38  | 31  | 27  |  | 25 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 3334 | 3334 | 3334 |
| 5°  | 3331 | 3302 | 3309 |
| 10° | 3304 | 3260 | 3267 |
| 15° | 3260 | 3205 | 3214 |
| 20° | 3199 | 3137 | 3144 |
| 25° | 3126 | 3053 | 3063 |
| 30° | 3048 | 2960 | 2964 |
| 35° | 2954 | 2850 | 2858 |
| 40° | 2852 | 2734 | 2737 |
| 45° | 2747 | 2616 | 2612 |
| 50° | 2627 | 2480 | 2481 |
| 55° | 2509 | 2346 | 2323 |
| 60° | 2379 | 2190 | 2174 |
| 65° | 2235 | 2021 | 1997 |
| 70° | 2061 | 1821 | 1829 |
| 75° | 1855 | 1612 | 1642 |
| 80° | 1570 | 1395 | 1504 |
| 85° | 1260 | 1230 | 1441 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2747 cd/sqm

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 CATALOG NUMBER: 24-ID2-72-CNV-L935-U

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 234.0  | 3.5       |
| 10°-20°   | 664.0  | 10.0      |
| 20°-30°   | 985.1  | 14.9      |
| 30°-40°   | 1151.0 | 17.4      |
| 40°-50°   | 1150.4 | 17.4      |
| 50°-60°   | 1001.6 | 15.1      |
| 60°-70°   | 742.5  | 11.2      |
| 70°-80°   | 436.1  | 6.6       |
| 80°-90°   | 175.1  | 2.6       |
| 90°-100°  | 45.8   | 0.7       |
| 100°-110° | 14.9   | 0.2       |
| 110°-120° | 8.7    | 0.1       |
| 120°-130° | 4.7    | 0.1       |
| 130°-140° | 2.4    | 0.0       |
| 140°-150° | 1.1    | 0.0       |
| 150°-160° | 0.1    | 0.0       |
| 160°-170° | 0.0    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-30°    | 1883.1 | 28.5      |
| 0°-40°    | 3034.1 | 45.9      |
| 0°-60°    | 5186.1 | 78.4      |
| 0°-90°    | 6539.7 | 98.8      |
| 90°-120°  | 69.3   | 1.0       |
| 90°-150°  | 77.6   | 1.2       |
| 90°-180°  | 78.0   | 1.2       |
| 0°-180°   | 6617.3 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 2478 | 2478  | 2478 | 2478  | 2478 |      |
| 5°   | 2475 | 2468  | 2463 | 2460  | 2467 | 235  |
| 15°  | 2365 | 2357  | 2354 | 2353  | 2357 | 667  |
| 25°  | 2145 | 2141  | 2138 | 2136  | 2140 | 989  |
| 35°  | 1849 | 1844  | 1838 | 1837  | 1837 | 1156 |
| 45°  | 1502 | 1499  | 1492 | 1486  | 1482 | 1158 |
| 55°  | 1130 | 1128  | 1121 | 1117  | 1103 | 1010 |
| 65°  | 762  | 756   | 750  | 739   | 735  | 754  |
| 75°  | 410  | 406   | 408  | 411   | 410  | 434  |
| 85°  | 119  | 134   | 157  | 175   | 179  | 125  |
| 90°  | 48   | 62    | 80   | 94    | 98   | 29   |
| 95°  | 41   | 34    | 34   | 41    | 44   | 32   |
| 105° | 28   | 24    | 14   | 4     | 0    | 30   |
| 115° | 18   | 15    | 8    | 2     | 0    | 18   |
| 125° | 12   | 9     | 5    | 1     | 0    | 10   |
| 135° | 6    | 5     | 3    | 1     | 0    | 5    |
| 145° | 4    | 3     | 1    | 1     | 1    | 2    |
| 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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CATALOG NUMBER: 24-ID2-72-CNV-L935-U

**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 2477.8 | 2477.8 | 2477.8 | 2477.8 | 2477.8 |
| 2.5°   | 2485.9 | 2476.9 | 2473.2 | 2470.5 | 2475.0 |
| 5°     | 2475.0 | 2467.8 | 2463.2 | 2460.5 | 2466.9 |
| 7.5°   | 2458.7 | 2450.5 | 2446.0 | 2444.2 | 2449.6 |
| 10°    | 2435.1 | 2425.1 | 2421.5 | 2419.7 | 2425.1 |
| 12.5°  | 2403.4 | 2395.2 | 2391.6 | 2389.8 | 2395.2 |
| 15°    | 2365.3 | 2357.1 | 2353.5 | 2352.6 | 2357.1 |
| 17.5°  | 2320.8 | 2312.6 | 2308.1 | 2308.1 | 2313.5 |
| 20°    | 2266.4 | 2260.9 | 2258.2 | 2257.3 | 2260.0 |
| 22.5°  | 2211.9 | 2203.8 | 2202.9 | 2199.2 | 2205.6 |
| 25°    | 2144.8 | 2141.2 | 2137.5 | 2135.7 | 2140.3 |
| 27.5°  | 2082.2 | 2072.2 | 2067.7 | 2068.6 | 2071.3 |
| 30°    | 2006.9 | 2000.5 | 1998.7 | 1994.2 | 1996.0 |
| 32.5°  | 1928.9 | 1924.3 | 1922.5 | 1917.1 | 1917.1 |
| 35°    | 1849.0 | 1844.5 | 1838.1 | 1837.2 | 1837.2 |
| 37.5°  | 1766.5 | 1761.9 | 1756.5 | 1751.9 | 1753.8 |
| 40°    | 1678.5 | 1673.9 | 1667.6 | 1666.7 | 1663.0 |
| 42.5°  | 1592.3 | 1587.7 | 1580.5 | 1579.6 | 1575.9 |
| 45°    | 1501.5 | 1498.8 | 1491.6 | 1486.1 | 1482.5 |
| 47.5°  | 1410.8 | 1406.3 | 1398.1 | 1392.7 | 1389.9 |
| 50°    | 1314.6 | 1310.1 | 1304.7 | 1299.2 | 1298.3 |
| 52.5°  | 1222.1 | 1221.2 | 1213.0 | 1208.5 | 1203.9 |
| 55°    | 1130.5 | 1127.7 | 1121.4 | 1116.9 | 1103.2 |
| 57.5°  | 1035.2 | 1033.4 | 1029.8 | 1019.8 | 1011.6 |
| 60°    | 945.4  | 939.9  | 933.6  | 921.8  | 920.0  |
| 62.5°  | 850.1  | 850.1  | 840.1  | 831.1  | 827.4  |
| 65°    | 762.1  | 755.8  | 750.3  | 739.4  | 734.9  |
| 67.5°  | 670.5  | 669.6  | 659.6  | 653.2  | 645.1  |
| 70°    | 581.6  | 578.8  | 570.7  | 568.9  | 567.0  |
| 72.5°  | 492.6  | 491.7  | 489.9  | 488.1  | 483.6  |
| 75°    | 410.1  | 406.5  | 408.3  | 411.0  | 410.1  |
| 77.5°  | 326.6  | 331.2  | 333.0  | 341.1  | 342.0  |
| 80°    | 248.6  | 255.9  | 266.7  | 279.4  | 282.2  |
| 82.5°  | 177.8  | 187.8  | 208.7  | 225.0  | 228.6  |
| 85°    | 118.9  | 134.3  | 157.0  | 175.1  | 178.7  |
| 87.5°  | 73.5   | 90.7   | 115.2  | 132.5  | 135.2  |
| 90°    | 48.1   | 61.7   | 79.8   | 94.4   | 98.0   |
| 92.5°  | 44.5   | 43.5   | 53.5   | 64.4   | 68.0   |
| 95°    | 40.8   | 34.5   | 34.5   | 40.8   | 43.5   |
| 97.5°  | 38.1   | 31.8   | 21.8   | 22.7   | 23.6   |
| 100°   | 34.5   | 29.0   | 16.3   | 10.0   | 10.0   |
| 102.5° | 31.8   | 26.3   | 14.5   | 3.6    | 0.9    |
| 105°   | 28.1   | 23.6   | 13.6   | 3.6    | 0.0    |
| 107.5° | 25.4   | 21.8   | 11.8   | 2.7    | 0.0    |
| 110°   | 22.7   | 19.1   | 10.9   | 2.7    | 0.0    |

TEST NUMBER: P1216214

CATALOG NUMBER: 24-ID2-72-CNV-L935-U

**CANDELA DISTRIBUTION (continued):**

|        | 0°   | 22.5° | 45°  | 67.5° | 90° |
|--------|------|-------|------|-------|-----|
| 112.5° | 20.9 | 17.2  | 10.0 | 1.8   | 0.0 |
| 115°   | 18.1 | 15.4  | 8.2  | 1.8   | 0.0 |
| 117.5° | 16.3 | 13.6  | 7.3  | 0.9   | 0.0 |
| 120°   | 14.5 | 11.8  | 6.4  | 0.9   | 0.0 |
| 122.5° | 12.7 | 10.9  | 5.4  | 0.9   | 0.0 |
| 125°   | 11.8 | 9.1   | 5.4  | 0.9   | 0.0 |
| 127.5° | 10.0 | 8.2   | 4.5  | 0.0   | 0.0 |
| 130°   | 9.1  | 7.3   | 3.6  | 0.0   | 0.0 |
| 132.5° | 8.2  | 6.4   | 2.7  | 0.9   | 0.0 |
| 135°   | 6.4  | 5.4   | 2.7  | 0.9   | 0.0 |
| 137.5° | 5.4  | 4.5   | 1.8  | 0.9   | 0.9 |
| 140°   | 4.5  | 3.6   | 1.8  | 0.9   | 0.9 |
| 142.5° | 4.5  | 3.6   | 1.8  | 0.9   | 0.9 |
| 145°   | 3.6  | 2.7   | 0.9  | 0.9   | 0.9 |
| 147.5° | 2.7  | 1.8   | 0.9  | 0.9   | 0.9 |
| 150°   | 1.8  | 1.8   | 0.9  | 0.9   | 0.9 |
| 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: P1216214

CATALOG NUMBER: 24-ID2-72-CNV-L935-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 | 14.80            | 16.39 | 15.18 | 16.73 | 17.08 | 14.82          | 16.41 | 15.20 | 16.75 | 17.10 |
|                 | 3H   | 16.47            | 17.91 | 16.86 | 18.26 | 18.65 | 16.50          | 17.94 | 16.89 | 18.29 | 18.68 |
|                 | 4H   | 17.07            | 18.43 | 17.48 | 18.80 | 19.20 | 17.15          | 18.51 | 17.56 | 18.88 | 19.28 |
|                 | 6H   | 17.49            | 18.75 | 17.92 | 19.14 | 19.56 | 17.69          | 18.95 | 18.12 | 19.34 | 19.76 |
|                 | 8H   | 17.61            | 18.82 | 18.06 | 19.23 | 19.66 | 17.92          | 19.12 | 18.36 | 19.54 | 19.96 |
|                 | 12H  | 17.69            | 18.85 | 18.14 | 19.25 | 19.71 | 18.13          | 19.28 | 18.58 | 19.69 | 20.14 |
| 4H              | 2H   | 15.37            | 16.73 | 15.79 | 17.10 | 17.51 | 15.39          | 16.74 | 15.80 | 17.12 | 17.52 |
|                 | 3H   | 17.25            | 18.39 | 17.68 | 18.81 | 19.24 | 17.28          | 18.42 | 17.71 | 18.84 | 19.27 |
|                 | 4H   | 17.97            | 19.00 | 18.42 | 19.44 | 19.90 | 18.06          | 19.09 | 18.51 | 19.53 | 19.99 |
|                 | 6H   | 18.51            | 19.42 | 18.99 | 19.88 | 20.36 | 18.74          | 19.65 | 19.21 | 20.11 | 20.59 |
|                 | 8H   | 18.68            | 19.53 | 19.16 | 19.99 | 20.49 | 19.03          | 19.88 | 19.51 | 20.34 | 20.84 |
|                 | 12H  | 18.80            | 19.57 | 19.30 | 20.07 | 20.56 | 19.31          | 20.07 | 19.81 | 20.57 | 21.07 |
| 8H              | 4H   | 18.25            | 19.10 | 18.73 | 19.56 | 20.06 | 18.33          | 19.18 | 18.81 | 19.64 | 20.14 |
|                 | 6H   | 18.91            | 19.62 | 19.42 | 20.13 | 20.63 | 19.14          | 19.85 | 19.65 | 20.36 | 20.86 |
|                 | 8H   | 19.15            | 19.79 | 19.68 | 20.31 | 20.83 | 19.53          | 20.16 | 20.05 | 20.69 | 21.20 |
|                 | 12H  | 19.34            | 19.91 | 19.87 | 20.42 | 21.01 | 19.92          | 20.49 | 20.44 | 21.00 | 21.58 |
| 12H             | 4H   | 18.29            | 19.05 | 18.79 | 19.55 | 20.04 | 18.36          | 19.12 | 18.86 | 19.62 | 20.11 |
|                 | 6H   | 18.97            | 19.61 | 19.50 | 20.14 | 20.65 | 19.19          | 19.83 | 19.72 | 20.36 | 20.87 |
|                 | 8H   | 19.27            | 19.84 | 19.80 | 20.35 | 20.94 | 19.64          | 20.21 | 20.17 | 20.72 | 21.30 |



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

Report Prepared for

Cooper Lighting Solutions

Corelite

Report Number: SP1-2506-458-10

Test Date: 08/26/2025

Luminaire Tested: 22ID2-55-CFR1-L935-U

Data in this report applies to families of products including 22ID2-55-CFR1-L935-U

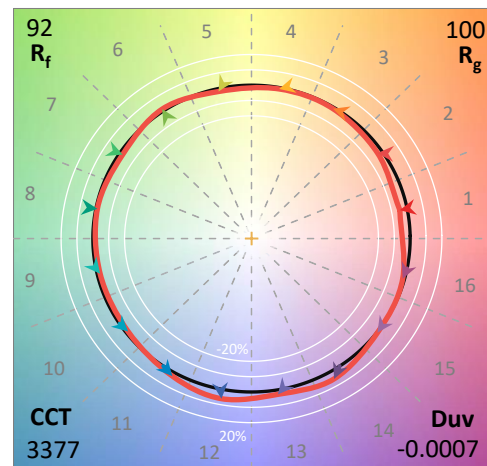
### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2506-458-10  
 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-L935-U**  
 Description: 2X2 CGTX WITH INDEPTH FRAME AND CFR1 LENS - 5500 LUMEN 3500K 90CRI

### Spectral Parameters

CCT (K): 3377  
 CIE  $u'$ : 0.2392  
 CIE  $v'$ : 0.5128  
 Duv: -0.0007  
 CIE x: 0.4116  
 CIE y: 0.3922  
 CIE z: 0.1962  
 Peak Wavelength (nm): 618  
 Dominant Wavelength (nm): 581  
 Purity: 41.24368  
 R<sub>f</sub>: 91.8  
 R<sub>g</sub>: 99.6

CRI (Ra): 93.6  
 R1: 94.1  
 R2: 96.6  
 R3: 97.5  
 R4: 94.0  
 R5: 93.6  
 R6: 94.8  
 R7: 93.4  
 R8: 84.8  
 R9: 64.2  
 R10: 91.1  
 R11: 94.7  
 R12: 78.5  
 R13: 95.0  
 R14: 98.1  
 R15: 91.0



### Test Conditions

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

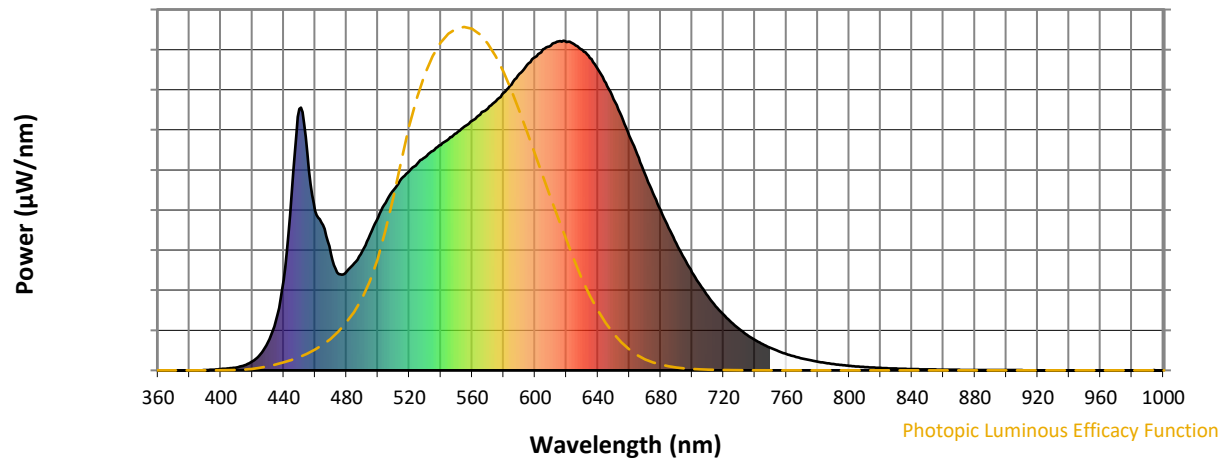
REPORT NUMBER: SP1-2506-458-10

| 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           |



REPORT NUMBER: SP1-2506-458-10

### Photopic Flux vs. Wavelength

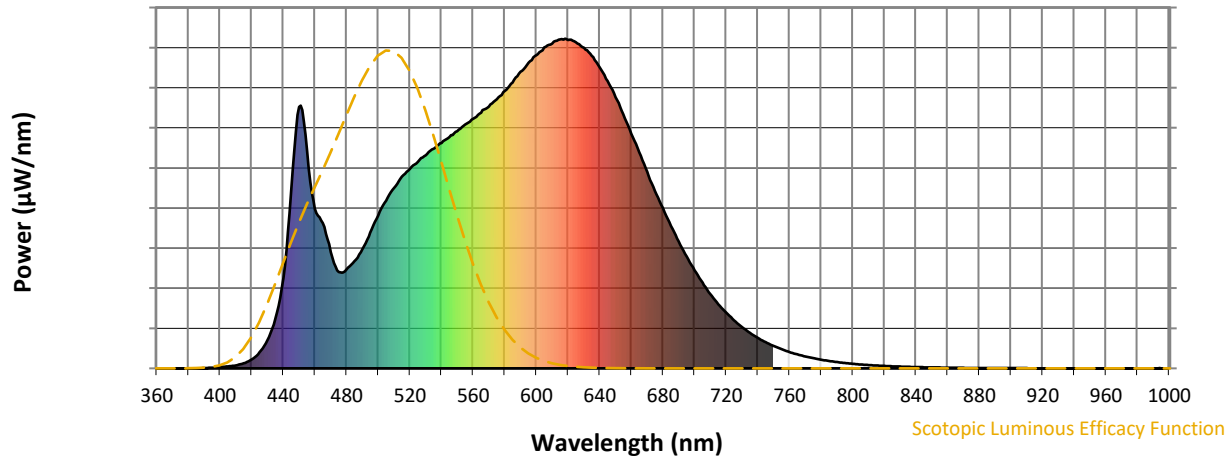


### Photopic Lumens: NR

| $\lambda$<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               | 362                                  | NR                             | 620               | 996                                  | NR                             | 750               | 68                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 412                                  | NR                             | 625               | 989                                  | NR                             | 755               | 58                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 463                                  | NR                             | 630               | 973                                  | NR                             | 760               | 49                                   | NR                             | 890               | 1                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 509                                  | NR                             | 635               | 947                                  | NR                             | 765               | 42                                   | NR                             | 895               | 1                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 548                                  | NR                             | 640               | 914                                  | NR                             | 770               | 36                                   | NR                             | 900               | 1                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 582                                  | NR                             | 645               | 872                                  | NR                             | 775               | 31                                   | NR                             | 905               | 1                                    | NR                             |
| 390               | 1                                    | NR                             | 520               | 605                                  | NR                             | 650               | 822                                  | NR                             | 780               | 26                                   | NR                             | 910               | 1                                    | NR                             |
| 395               | 2                                    | NR                             | 525               | 626                                  | NR                             | 655               | 770                                  | NR                             | 785               | 22                                   | NR                             | 915               | 1                                    | NR                             |
| 400               | 4                                    | NR                             | 530               | 646                                  | NR                             | 660               | 712                                  | NR                             | 790               | 19                                   | NR                             | 920               | 0                                    | NR                             |
| 405               | 6                                    | NR                             | 535               | 666                                  | NR                             | 665               | 656                                  | NR                             | 795               | 16                                   | NR                             | 925               | 0                                    | NR                             |
| 410               | 9                                    | NR                             | 540               | 683                                  | NR                             | 670               | 596                                  | NR                             | 800               | 14                                   | NR                             | 930               | 0                                    | NR                             |
| 415               | 15                                   | NR                             | 545               | 702                                  | NR                             | 675               | 538                                  | NR                             | 805               | 12                                   | NR                             | 935               | 0                                    | NR                             |
| 420               | 27                                   | NR                             | 550               | 720                                  | NR                             | 680               | 486                                  | NR                             | 810               | 10                                   | NR                             | 940               | 0                                    | NR                             |
| 425               | 48                                   | NR                             | 555               | 740                                  | NR                             | 685               | 432                                  | NR                             | 815               | 9                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 85                                   | NR                             | 560               | 757                                  | NR                             | 690               | 385                                  | NR                             | 820               | 7                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 152                                  | NR                             | 565               | 776                                  | NR                             | 695               | 339                                  | NR                             | 825               | 6                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 274                                  | NR                             | 570               | 794                                  | NR                             | 700               | 297                                  | NR                             | 830               | 5                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 536                                  | NR                             | 575               | 816                                  | NR                             | 705               | 260                                  | NR                             | 835               | 5                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 793                                  | NR                             | 580               | 842                                  | NR                             | 710               | 225                                  | NR                             | 840               | 4                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 659                                  | NR                             | 585               | 867                                  | NR                             | 715               | 194                                  | NR                             | 845               | 3                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 484                                  | NR                             | 590               | 899                                  | NR                             | 720               | 169                                  | NR                             | 850               | 3                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 441                                  | NR                             | 595               | 927                                  | NR                             | 725               | 146                                  | NR                             | 855               | 2                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 353                                  | NR                             | 600               | 950                                  | NR                             | 730               | 125                                  | NR                             | 860               | 2                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 293                                  | NR                             | 605               | 974                                  | NR                             | 735               | 107                                  | NR                             | 865               | 2                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 300                                  | NR                             | 610               | 986                                  | NR                             | 740               | 92                                   | NR                             | 870               | 2                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 325                                  | NR                             | 615               | 998                                  | NR                             | 745               | 79                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

REPORT NUMBER: SP1-2506-458-10

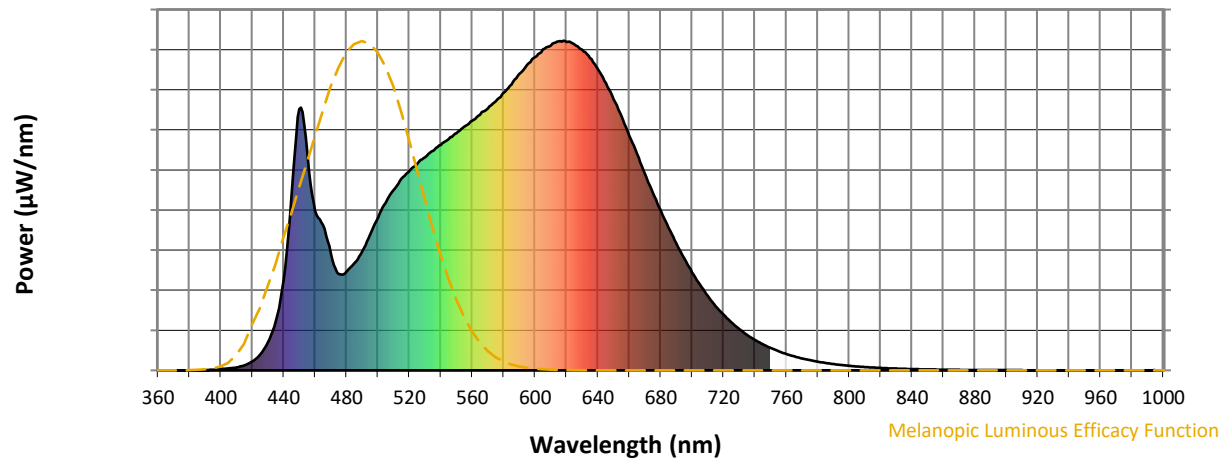
### Scotopic Flux vs. Wavelength


**Scotopic Lumens: NR**
**S/P: 1.58**

| λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 362                      | NR            | 620    | 996                      | NR            | 750    | 68                       | NR            | 880    | 1                        | NR            |
| 365    | 0                        | NR            | 495    | 412                      | NR            | 625    | 989                      | NR            | 755    | 58                       | NR            | 885    | 1                        | NR            |
| 370    | 0                        | NR            | 500    | 463                      | NR            | 630    | 973                      | NR            | 760    | 49                       | NR            | 890    | 1                        | NR            |
| 375    | 0                        | NR            | 505    | 509                      | NR            | 635    | 947                      | NR            | 765    | 42                       | NR            | 895    | 1                        | NR            |
| 380    | 0                        | NR            | 510    | 548                      | NR            | 640    | 914                      | NR            | 770    | 36                       | NR            | 900    | 1                        | NR            |
| 385    | 0                        | NR            | 515    | 582                      | NR            | 645    | 872                      | NR            | 775    | 31                       | NR            | 905    | 1                        | NR            |
| 390    | 1                        | NR            | 520    | 605                      | NR            | 650    | 822                      | NR            | 780    | 26                       | NR            | 910    | 1                        | NR            |
| 395    | 2                        | NR            | 525    | 626                      | NR            | 655    | 770                      | NR            | 785    | 22                       | NR            | 915    | 1                        | NR            |
| 400    | 4                        | NR            | 530    | 646                      | NR            | 660    | 712                      | NR            | 790    | 19                       | NR            | 920    | 0                        | NR            |
| 405    | 6                        | NR            | 535    | 666                      | NR            | 665    | 656                      | NR            | 795    | 16                       | NR            | 925    | 0                        | NR            |
| 410    | 9                        | NR            | 540    | 683                      | NR            | 670    | 596                      | NR            | 800    | 14                       | NR            | 930    | 0                        | NR            |
| 415    | 15                       | NR            | 545    | 702                      | NR            | 675    | 538                      | NR            | 805    | 12                       | NR            | 935    | 0                        | NR            |
| 420    | 27                       | NR            | 550    | 720                      | NR            | 680    | 486                      | NR            | 810    | 10                       | NR            | 940    | 0                        | NR            |
| 425    | 48                       | NR            | 555    | 740                      | NR            | 685    | 432                      | NR            | 815    | 9                        | NR            | 945    | 0                        | NR            |
| 430    | 85                       | NR            | 560    | 757                      | NR            | 690    | 385                      | NR            | 820    | 7                        | NR            | 950    | 0                        | NR            |
| 435    | 152                      | NR            | 565    | 776                      | NR            | 695    | 339                      | NR            | 825    | 6                        | NR            | 955    | 0                        | NR            |
| 440    | 274                      | NR            | 570    | 794                      | NR            | 700    | 297                      | NR            | 830    | 5                        | NR            | 960    | 0                        | NR            |
| 445    | 536                      | NR            | 575    | 816                      | NR            | 705    | 260                      | NR            | 835    | 5                        | NR            | 965    | 0                        | NR            |
| 450    | 793                      | NR            | 580    | 842                      | NR            | 710    | 225                      | NR            | 840    | 4                        | NR            | 970    | 0                        | NR            |
| 455    | 659                      | NR            | 585    | 867                      | NR            | 715    | 194                      | NR            | 845    | 3                        | NR            | 975    | 0                        | NR            |
| 460    | 484                      | NR            | 590    | 899                      | NR            | 720    | 169                      | NR            | 850    | 3                        | NR            | 980    | 0                        | NR            |
| 465    | 441                      | NR            | 595    | 927                      | NR            | 725    | 146                      | NR            | 855    | 2                        | NR            | 985    | 0                        | NR            |
| 470    | 353                      | NR            | 600    | 950                      | NR            | 730    | 125                      | NR            | 860    | 2                        | NR            | 990    | 0                        | NR            |
| 475    | 293                      | NR            | 605    | 974                      | NR            | 735    | 107                      | NR            | 865    | 2                        | NR            | 995    | 0                        | NR            |
| 480    | 300                      | NR            | 610    | 986                      | NR            | 740    | 92                       | NR            | 870    | 2                        | NR            | 1000   | 0                        | NR            |
| 485    | 325                      | NR            | 615    | 998                      | NR            | 745    | 79                       | NR            | 875    | 1                        | NR            |        |                          |               |

REPORT NUMBER: SP1-2506-458-10

### Melanopic Flux vs. Wavelength


**Melanopic Lumens: NR**
**M/P: 3.19**

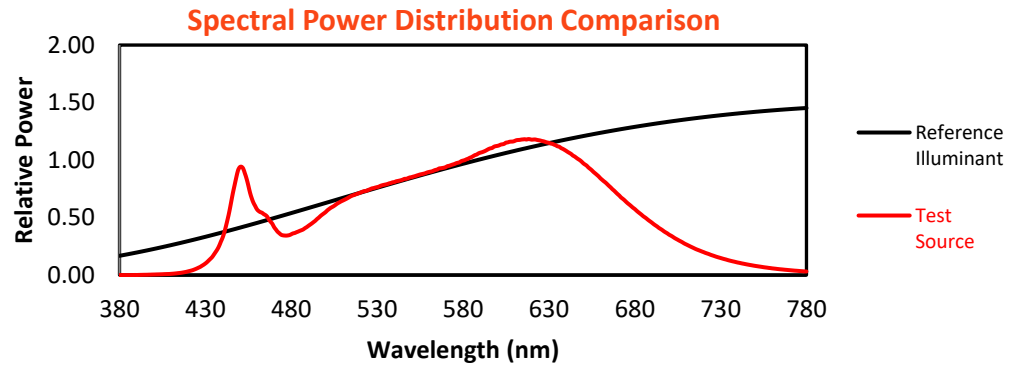
| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<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               | 362                                  | NR                             | 620               | 996                                  | NR                             | 750               | 68                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 412                                  | NR                             | 625               | 989                                  | NR                             | 755               | 58                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 463                                  | NR                             | 630               | 973                                  | NR                             | 760               | 49                                   | NR                             | 890               | 1                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 509                                  | NR                             | 635               | 947                                  | NR                             | 765               | 42                                   | NR                             | 895               | 1                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 548                                  | NR                             | 640               | 914                                  | NR                             | 770               | 36                                   | NR                             | 900               | 1                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 582                                  | NR                             | 645               | 872                                  | NR                             | 775               | 31                                   | NR                             | 905               | 1                                    | NR                             |
| 390               | 1                                    | NR                             | 520               | 605                                  | NR                             | 650               | 822                                  | NR                             | 780               | 26                                   | NR                             | 910               | 1                                    | NR                             |
| 395               | 2                                    | NR                             | 525               | 626                                  | NR                             | 655               | 770                                  | NR                             | 785               | 22                                   | NR                             | 915               | 1                                    | NR                             |
| 400               | 4                                    | NR                             | 530               | 646                                  | NR                             | 660               | 712                                  | NR                             | 790               | 19                                   | NR                             | 920               | 0                                    | NR                             |
| 405               | 6                                    | NR                             | 535               | 666                                  | NR                             | 665               | 656                                  | NR                             | 795               | 16                                   | NR                             | 925               | 0                                    | NR                             |
| 410               | 9                                    | NR                             | 540               | 683                                  | NR                             | 670               | 596                                  | NR                             | 800               | 14                                   | NR                             | 930               | 0                                    | NR                             |
| 415               | 15                                   | NR                             | 545               | 702                                  | NR                             | 675               | 538                                  | NR                             | 805               | 12                                   | NR                             | 935               | 0                                    | NR                             |
| 420               | 27                                   | NR                             | 550               | 720                                  | NR                             | 680               | 486                                  | NR                             | 810               | 10                                   | NR                             | 940               | 0                                    | NR                             |
| 425               | 48                                   | NR                             | 555               | 740                                  | NR                             | 685               | 432                                  | NR                             | 815               | 9                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 85                                   | NR                             | 560               | 757                                  | NR                             | 690               | 385                                  | NR                             | 820               | 7                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 152                                  | NR                             | 565               | 776                                  | NR                             | 695               | 339                                  | NR                             | 825               | 6                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 274                                  | NR                             | 570               | 794                                  | NR                             | 700               | 297                                  | NR                             | 830               | 5                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 536                                  | NR                             | 575               | 816                                  | NR                             | 705               | 260                                  | NR                             | 835               | 5                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 793                                  | NR                             | 580               | 842                                  | NR                             | 710               | 225                                  | NR                             | 840               | 4                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 659                                  | NR                             | 585               | 867                                  | NR                             | 715               | 194                                  | NR                             | 845               | 3                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 484                                  | NR                             | 590               | 899                                  | NR                             | 720               | 169                                  | NR                             | 850               | 3                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 441                                  | NR                             | 595               | 927                                  | NR                             | 725               | 146                                  | NR                             | 855               | 2                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 353                                  | NR                             | 600               | 950                                  | NR                             | 730               | 125                                  | NR                             | 860               | 2                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 293                                  | NR                             | 605               | 974                                  | NR                             | 735               | 107                                  | NR                             | 865               | 2                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 300                                  | NR                             | 610               | 986                                  | NR                             | 740               | 92                                   | NR                             | 870               | 2                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 325                                  | NR                             | 615               | 998                                  | NR                             | 745               | 79                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

REPORT NUMBER: SP1-2506-458-10

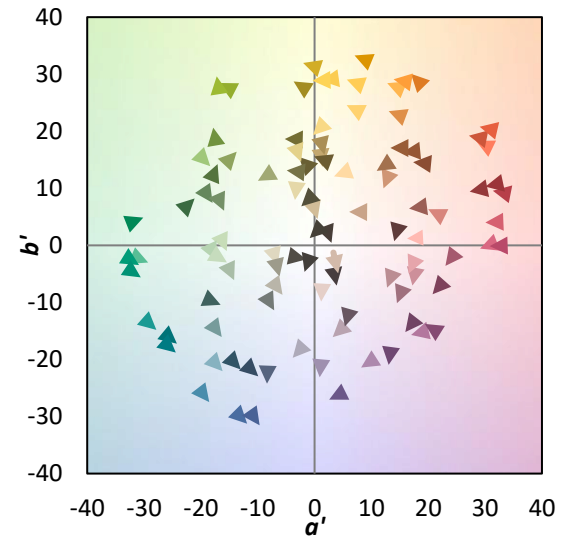
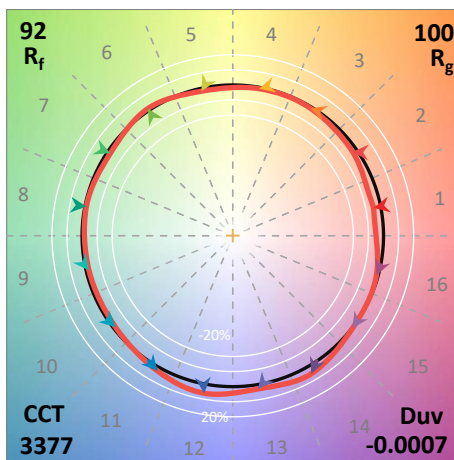
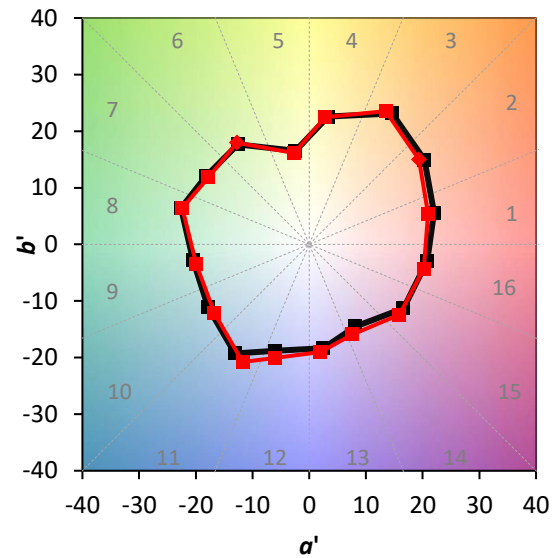
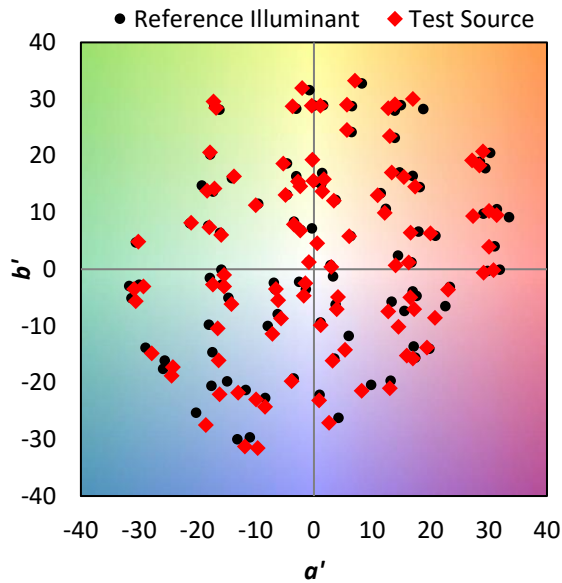
TM-30-18

### Summary

$R_f = 91.8$   
 $R_g = 99.6$   
 $CIE R_a = 93.6$   
 $R_9 = 64.2$



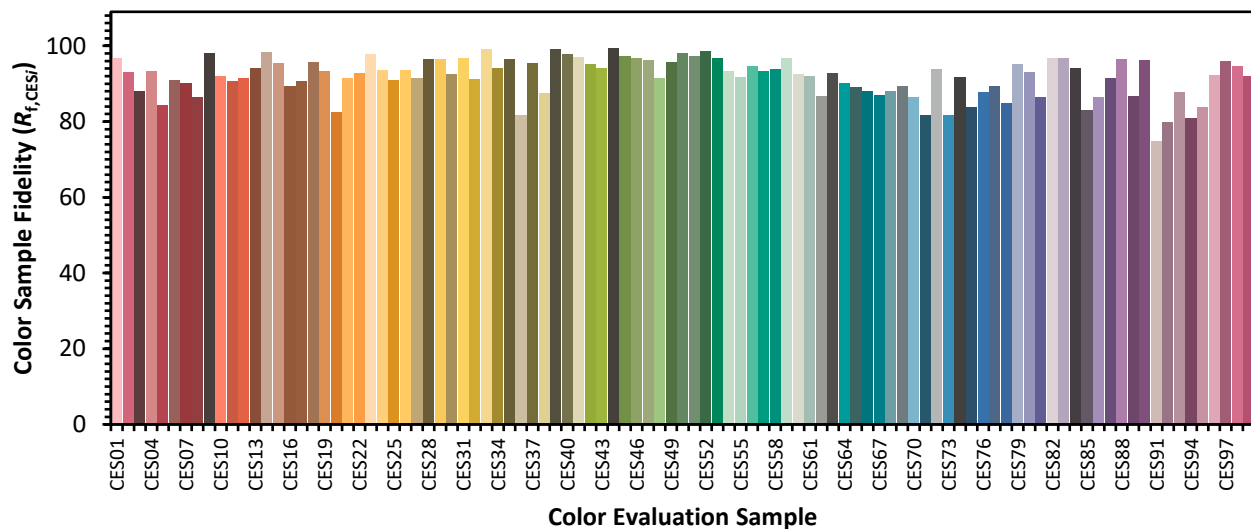
### Color Vector Graphics

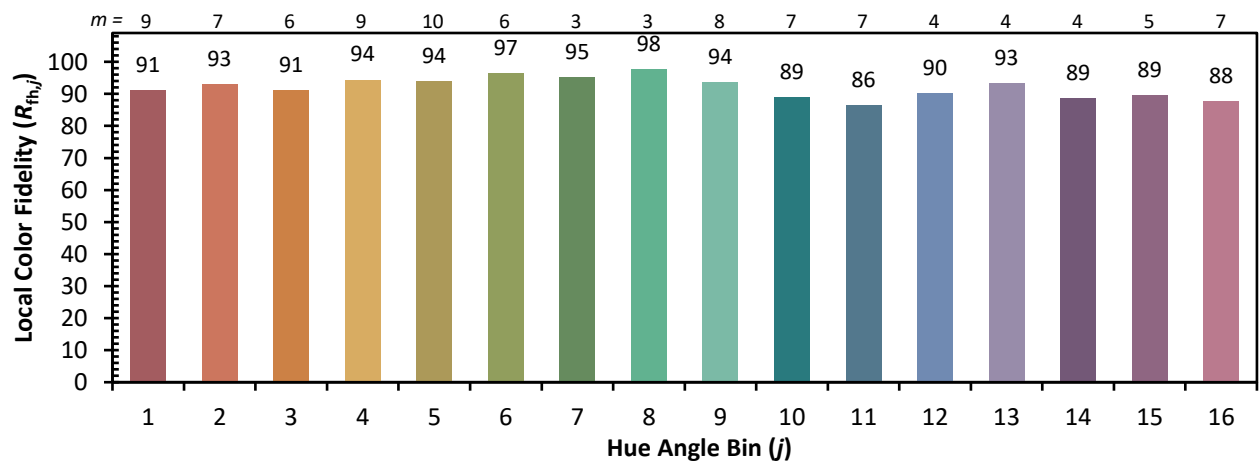
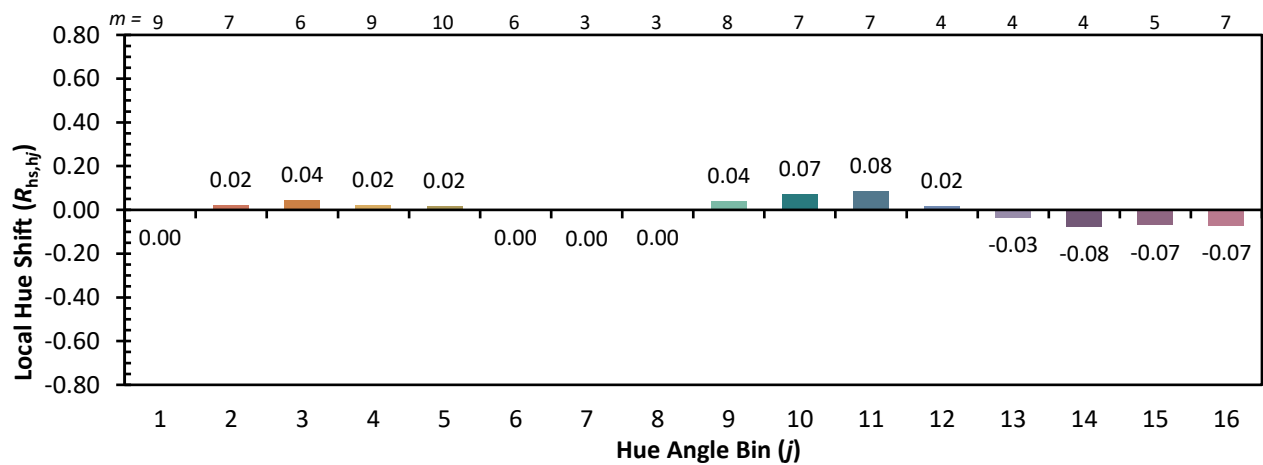
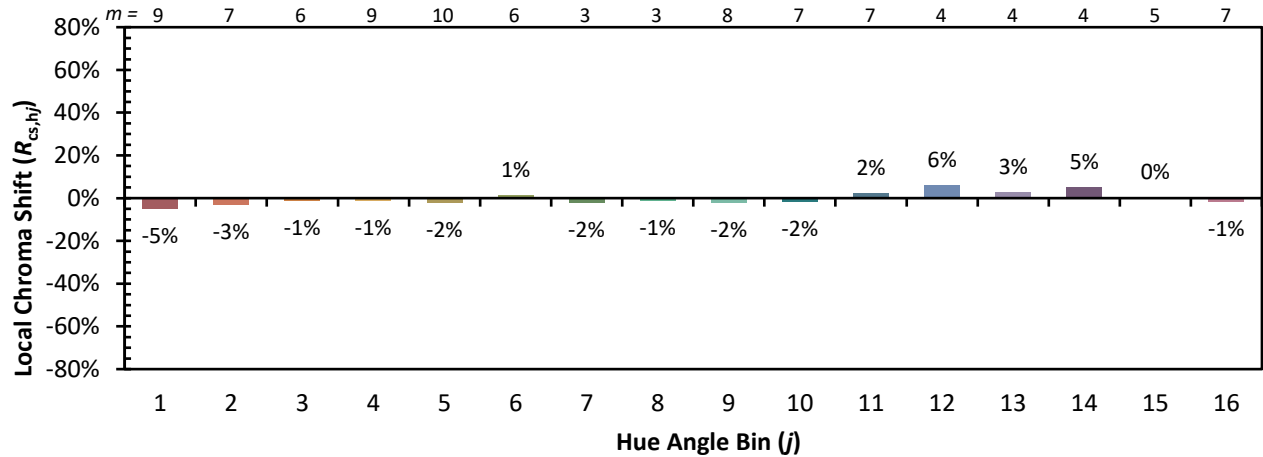




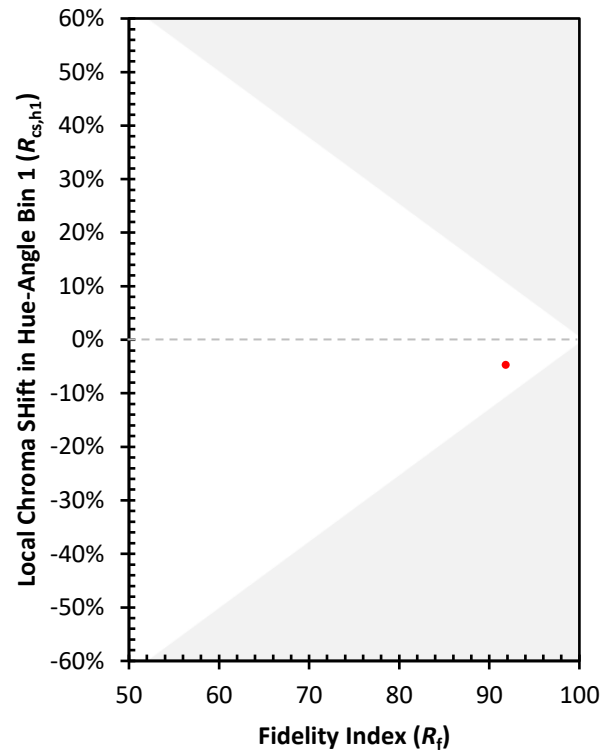
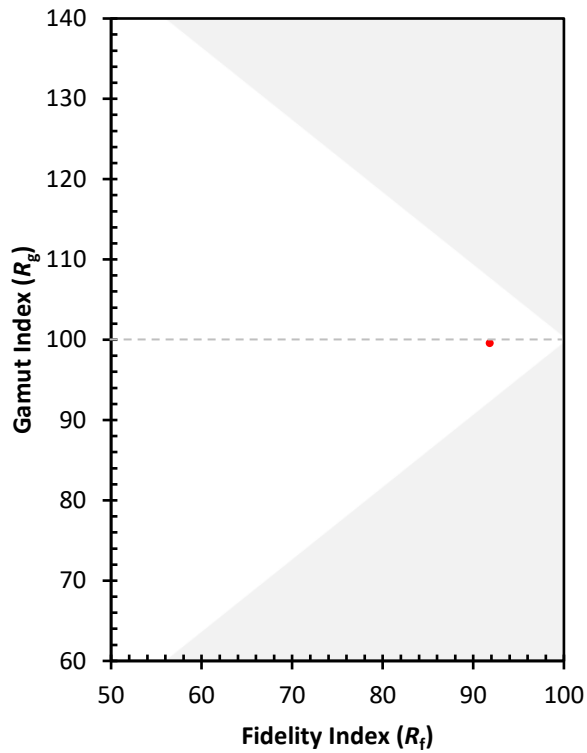
Individual Sample Fidelity Index ( $R_{f,i}$ )

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 94 | CES51 = 97 | CES76 = 88 |
| CES02 = 62 | CES27 = 92 | CES52 = 99 | CES77 = 89 |
| CES03 = 31 | CES28 = 96 | CES53 = 97 | CES78 = 85 |
| CES04 = 70 | CES29 = 96 | CES54 = 93 | CES79 = 95 |
| CES05 = 50 | CES30 = 92 | CES55 = 92 | CES80 = 93 |
| CES06 = 51 | CES31 = 97 | CES56 = 95 | CES81 = 86 |
| CES07 = 43 | CES32 = 91 | CES57 = 93 | CES82 = 97 |
| CES08 = 42 | CES33 = 99 | CES58 = 94 | CES83 = 97 |
| CES09 = 29 | CES34 = 94 | CES59 = 97 | CES84 = 94 |
| CES10 = 75 | CES35 = 96 | CES60 = 92 | CES85 = 83 |
| CES11 = 58 | CES36 = 82 | CES61 = 92 | CES86 = 86 |
| CES12 = 64 | CES37 = 95 | CES62 = 87 | CES87 = 91 |
| CES13 = 43 | CES38 = 87 | CES63 = 93 | CES88 = 97 |
| CES14 = 74 | CES39 = 99 | CES64 = 90 | CES89 = 87 |
| CES15 = 72 | CES40 = 98 | CES65 = 89 | CES90 = 96 |
| CES16 = 48 | CES41 = 97 | CES66 = 88 | CES91 = 75 |
| CES17 = 50 | CES42 = 95 | CES67 = 87 | CES92 = 80 |
| CES18 = 56 | CES43 = 94 | CES68 = 88 | CES93 = 88 |
| CES19 = 71 | CES44 = 99 | CES69 = 89 | CES94 = 81 |
| CES20 = 67 | CES45 = 97 | CES70 = 86 | CES95 = 84 |
| CES21 = 86 | CES46 = 97 | CES71 = 82 | CES96 = 92 |
| CES22 = 78 | CES47 = 96 | CES72 = 94 | CES97 = 96 |
| CES23 = 91 | CES48 = 92 | CES73 = 82 | CES98 = 95 |
| CES24 = 90 | CES49 = 96 | CES74 = 92 | CES99 = 92 |
| CES25 = 71 | CES50 = 98 | CES75 = 84 |            |



**Color Rendition by Hue-Angle Bin**


**Measure Comparisons**



(END OF REPORT)