

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: P1215790

Luminaire Tested: 24-ID2-35-CFD1-L935-U

Issue Date: 12/5/2025

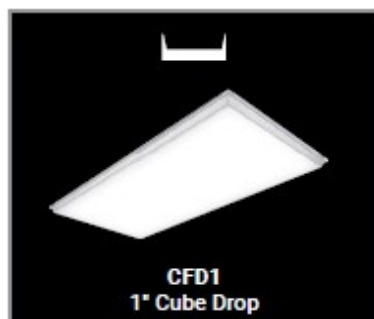
**Test Information**

Test Method: LM-79-2019  
Report Number: P1215790  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2508-510-8)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/5/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: CORELITE  
Catalog Number: 24-ID2-35-CFD1-L935-U  
Description: 2X4 IN DEPTH TROFFER WITH 1INCH CUBE DROP LENS  
Light Source: 3500K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

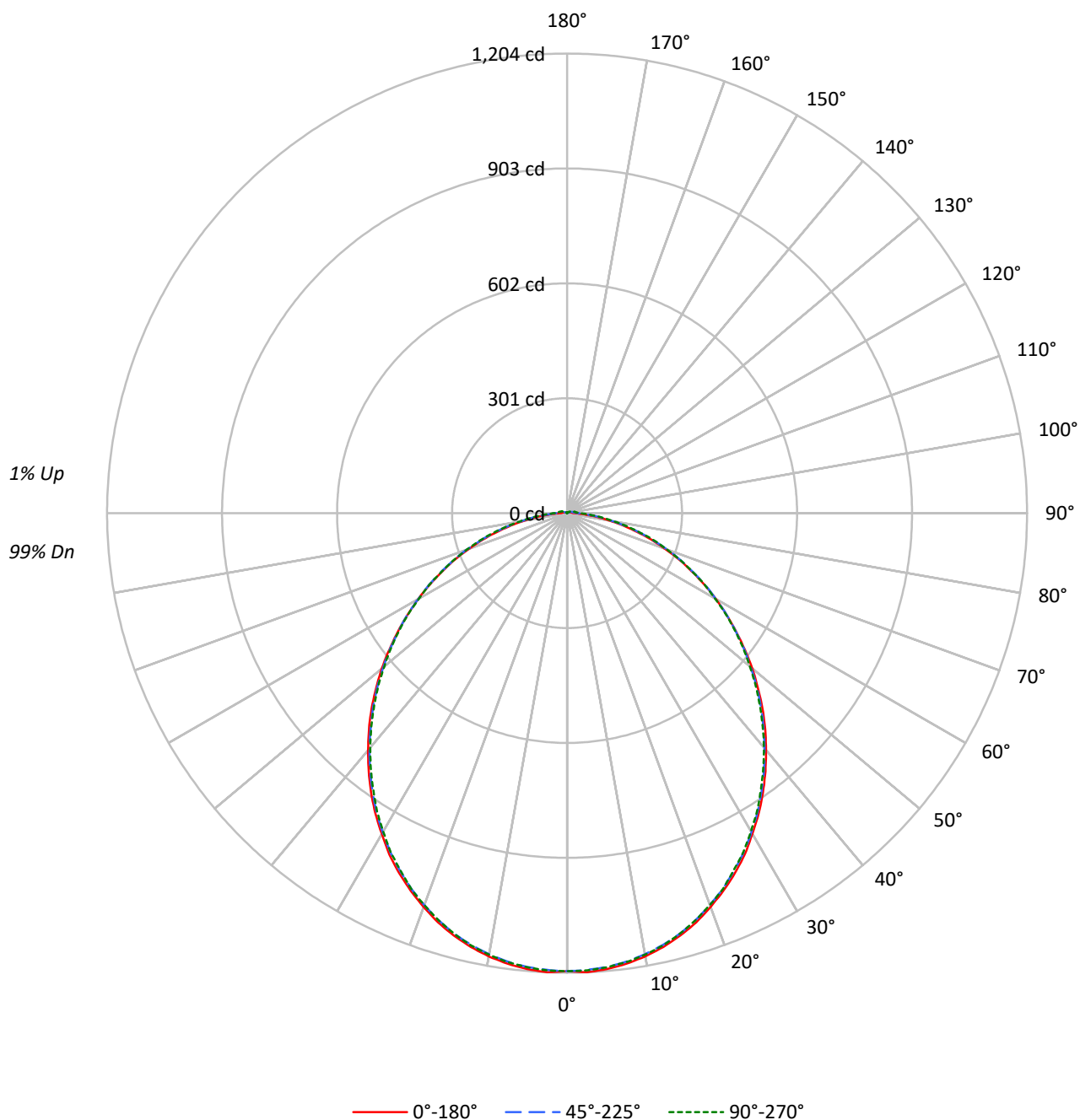
Lumens per Lamp: N/A  
Luminaire Lumens: 3189.4 lumens  
Efficiency: N/A  
Efficacy: 104.9 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.2 / 1.31  
Luminous Opening: Rectangular w/ Sides (W: 2' x L: 4' x H: 0.08')  
CIE Type: Direct

Input Watts (W): 30.4  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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### Luminous Intensity Polar Plot



TEST NUMBER: P1215790

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

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|
| RF  | 20  |     |     |     | 20  |     |     |     |     | 20  |     |     |     |     | 20  |     |     |    |    | 20 |
| RC  | 80  |     |     |     | 70  |     |     |     |     | 50  |     |     |     |     | 30  |     |     |    |    | 0  |
| RW  | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50 | 30 | 0  |
| RCR |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 110 | 110 | 110 | 105 | 105 | 105 | 101 | 101 | 101 |    |    | 99 |
| 1   | 108 | 104 | 99  | 96  | 106 | 101 | 97  | 94  | 97  | 94  | 91  | 93  | 90  | 88  | 89  | 87  | 85  |    |    | 83 |
| 2   | 99  | 91  | 84  | 78  | 96  | 89  | 82  | 77  | 85  | 80  | 75  | 81  | 77  | 73  | 78  | 74  | 71  |    |    | 69 |
| 3   | 90  | 80  | 72  | 65  | 88  | 78  | 71  | 65  | 75  | 68  | 63  | 72  | 66  | 62  | 69  | 65  | 61  |    |    | 58 |
| 4   | 83  | 71  | 62  | 55  | 80  | 69  | 61  | 55  | 67  | 60  | 54  | 64  | 58  | 53  | 62  | 57  | 52  |    |    | 50 |
| 5   | 76  | 63  | 54  | 48  | 74  | 62  | 54  | 48  | 60  | 53  | 47  | 58  | 51  | 46  | 56  | 50  | 46  |    |    | 44 |
| 6   | 70  | 57  | 48  | 42  | 68  | 56  | 48  | 42  | 54  | 47  | 41  | 52  | 46  | 41  | 51  | 45  | 40  |    |    | 38 |
| 7   | 65  | 52  | 43  | 37  | 64  | 51  | 43  | 37  | 49  | 42  | 37  | 48  | 41  | 36  | 46  | 40  | 36  |    |    | 34 |
| 8   | 61  | 47  | 39  | 33  | 59  | 47  | 39  | 33  | 45  | 38  | 33  | 44  | 37  | 33  | 43  | 37  | 32  |    |    | 30 |
| 9   | 57  | 44  | 35  | 30  | 55  | 43  | 35  | 30  | 42  | 35  | 30  | 41  | 34  | 29  | 39  | 34  | 29  |    |    | 27 |
| 10  | 53  | 40  | 32  | 27  | 52  | 40  | 32  | 27  | 39  | 32  | 27  | 38  | 31  | 27  | 37  | 31  | 27  |    |    | 25 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 1614 | 1614 | 1614 |
| 5°  | 1617 | 1606 | 1607 |
| 10° | 1605 | 1591 | 1594 |
| 15° | 1587 | 1571 | 1572 |
| 20° | 1561 | 1541 | 1542 |
| 25° | 1530 | 1505 | 1504 |
| 30° | 1490 | 1464 | 1462 |
| 35° | 1448 | 1417 | 1413 |
| 40° | 1400 | 1364 | 1362 |
| 45° | 1350 | 1310 | 1306 |
| 50° | 1294 | 1250 | 1248 |
| 55° | 1231 | 1190 | 1190 |
| 60° | 1170 | 1126 | 1125 |
| 65° | 1097 | 1059 | 1061 |
| 70° | 1016 | 985  | 989  |
| 75° | 915  | 881  | 901  |
| 80° | 788  | 767  | 798  |
| 85° | 643  | 659  | 731  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1350 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 113.4  | 3.6       |
| 10°-20°   | 321.6  | 10.1      |
| 20°-30°   | 476.5  | 14.9      |
| 30°-40°   | 555.5  | 17.4      |
| 40°-50°   | 553.8  | 17.4      |
| 50°-60°   | 482.1  | 15.1      |
| 60°-70°   | 359.3  | 11.3      |
| 70°-80°   | 208.5  | 6.5       |
| 80°-90°   | 72.7   | 2.3       |
| 90°-100°  | 21.8   | 0.7       |
| 100°-110° | 13.1   | 0.4       |
| 110°-120° | 6.9    | 0.2       |
| 120°-130° | 3.0    | 0.1       |
| 130°-140° | 0.9    | 0.0       |
| 140°-150° | 0.3    | 0.0       |
| 150°-160° | 0.2    | 0.0       |
| 160°-170° | 0.0    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-30°    | 911.4  | 28.6      |
| 0°-40°    | 1466.9 | 46.0      |
| 0°-60°    | 2502.8 | 78.5      |
| 0°-90°    | 3143.3 | 98.6      |
| 90°-120°  | 41.8   | 1.3       |
| 90°-150°  | 45.9   | 1.4       |
| 90°-180°  | 46.0   | 1.4       |
| 0°-180°   | 3189.4 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 1200 | 1200  | 1200 | 1200  | 1200 |      |
| 5°   | 1199 | 1195  | 1193 | 1192  | 1194 | 114  |
| 15°  | 1146 | 1142  | 1141 | 1138  | 1141 | 323  |
| 25°  | 1040 | 1037  | 1034 | 1032  | 1032 | 479  |
| 35°  | 894  | 891   | 888  | 885   | 884  | 559  |
| 45°  | 723  | 720   | 718  | 715   | 714  | 558  |
| 55°  | 540  | 541   | 538  | 539   | 536  | 483  |
| 65°  | 359  | 362   | 363  | 364   | 362  | 357  |
| 75°  | 189  | 193   | 196  | 201   | 199  | 201  |
| 85°  | 51   | 57    | 63   | 67    | 69   | 55   |
| 90°  | 17   | 22    | 28   | 32    | 33   | 11   |
| 95°  | 13   | 16    | 20   | 23    | 24   | 10   |
| 105° | 9    | 9     | 13   | 15    | 16   | 9    |
| 115° | 5    | 4     | 6    | 9     | 10   | 5    |
| 125° | 3    | 2     | 2    | 4     | 6    | 3    |
| 135° | 1    | 1     | 0    | 1     | 2    | 1    |
| 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°     | 1199.9 | 1199.9 | 1199.9 | 1199.9 | 1199.9 |
| 2.5°   | 1203.8 | 1200.4 | 1197.8 | 1196.9 | 1199.1 |
| 5°     | 1199.1 | 1195.2 | 1193.4 | 1192.1 | 1194.3 |
| 7.5°   | 1190.8 | 1187.8 | 1185.2 | 1183.9 | 1186.5 |
| 10°    | 1179.1 | 1175.2 | 1173.5 | 1172.2 | 1174.8 |
| 12.5°  | 1163.9 | 1160.4 | 1158.7 | 1157.4 | 1160.0 |
| 15°    | 1145.7 | 1141.8 | 1140.9 | 1138.3 | 1140.9 |
| 17.5°  | 1124.0 | 1120.5 | 1117.9 | 1117.0 | 1118.3 |
| 20°    | 1097.9 | 1095.8 | 1092.7 | 1091.9 | 1092.7 |
| 22.5°  | 1070.2 | 1067.6 | 1065.0 | 1063.2 | 1065.8 |
| 25°    | 1040.2 | 1037.2 | 1033.7 | 1032.4 | 1032.0 |
| 27.5°  | 1007.7 | 1003.8 | 1001.2 | 998.6  | 1000.3 |
| 30°    | 969.9  | 968.2  | 965.2  | 963.4  | 962.5  |
| 32.5°  | 933.5  | 932.2  | 928.3  | 924.8  | 925.7  |
| 35°    | 894.0  | 891.4  | 888.3  | 885.3  | 884.4  |
| 37.5°  | 852.8  | 850.1  | 846.7  | 844.1  | 843.6  |
| 40°    | 810.2  | 808.5  | 804.1  | 801.5  | 801.5  |
| 42.5°  | 767.7  | 765.5  | 760.8  | 759.4  | 758.1  |
| 45°    | 723.4  | 720.4  | 717.8  | 715.2  | 713.9  |
| 47.5°  | 677.4  | 675.7  | 672.7  | 670.9  | 670.1  |
| 50°    | 632.7  | 630.6  | 627.5  | 626.2  | 624.5  |
| 52.5°  | 585.9  | 585.9  | 583.7  | 582.4  | 580.7  |
| 55°    | 539.9  | 541.2  | 538.1  | 538.6  | 536.4  |
| 57.5°  | 494.3  | 495.6  | 496.0  | 493.0  | 492.6  |
| 60°    | 450.0  | 450.5  | 449.2  | 449.2  | 447.0  |
| 62.5°  | 404.5  | 405.8  | 407.9  | 406.6  | 406.2  |
| 65°    | 359.3  | 361.5  | 362.8  | 363.7  | 361.9  |
| 67.5°  | 317.2  | 319.4  | 321.6  | 320.7  | 320.3  |
| 70°    | 272.5  | 275.1  | 279.5  | 281.2  | 279.0  |
| 72.5°  | 230.9  | 234.3  | 236.5  | 239.1  | 240.0  |
| 75°    | 189.2  | 193.1  | 196.2  | 200.9  | 199.2  |
| 77.5°  | 150.2  | 154.9  | 158.8  | 162.7  | 162.7  |
| 80°    | 113.3  | 118.0  | 122.8  | 127.2  | 126.3  |
| 82.5°  | 79.9   | 85.5   | 90.3   | 95.0   | 95.9   |
| 85°    | 51.2   | 57.3   | 63.4   | 67.3   | 69.0   |
| 87.5°  | 30.8   | 35.6   | 42.1   | 46.4   | 48.2   |
| 90°    | 17.4   | 22.1   | 28.2   | 32.5   | 33.4   |
| 92.5°  | 14.3   | 17.4   | 22.6   | 26.5   | 26.9   |
| 95°    | 13.0   | 15.6   | 20.4   | 23.0   | 23.9   |
| 97.5°  | 11.7   | 13.5   | 18.2   | 21.3   | 22.1   |
| 100°   | 10.8   | 11.7   | 16.1   | 19.1   | 20.0   |
| 102.5° | 9.5    | 10.4   | 14.3   | 16.9   | 18.2   |
| 105°   | 8.7    | 8.7    | 12.6   | 15.2   | 16.5   |
| 107.5° | 7.8    | 7.4    | 10.8   | 13.5   | 14.8   |
| 110°   | 6.9    | 6.1    | 9.5    | 11.7   | 13.5   |

TEST NUMBER: P1215790

CATALOG NUMBER: 24-ID2-35-CFD1-L935-U

**CANDELA DISTRIBUTION (continued):**

|        | 0°  | 22.5° | 45° | 67.5° | 90°  |
|--------|-----|-------|-----|-------|------|
| 112.5° | 6.1 | 5.2   | 7.8 | 10.0  | 11.7 |
| 115°   | 5.2 | 4.3   | 6.5 | 8.7   | 10.4 |
| 117.5° | 4.3 | 3.9   | 5.2 | 7.4   | 9.1  |
| 120°   | 3.9 | 3.0   | 4.3 | 6.5   | 7.8  |
| 122.5° | 3.5 | 2.6   | 3.0 | 5.2   | 6.5  |
| 125°   | 3.0 | 2.2   | 2.2 | 4.3   | 5.6  |
| 127.5° | 2.2 | 1.7   | 1.3 | 3.5   | 4.3  |
| 130°   | 2.2 | 1.3   | 0.9 | 2.6   | 3.5  |
| 132.5° | 1.7 | 1.3   | 0.4 | 1.7   | 2.6  |
| 135°   | 1.3 | 0.9   | 0.4 | 1.3   | 1.7  |
| 137.5° | 0.9 | 0.9   | 0.4 | 0.9   | 1.3  |
| 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° | 0.4 | 0.4   | 0.4 | 0.4   | 0.4  |
| 150°   | 0.4 | 0.4   | 0.4 | 0.4   | 0.4  |
| 152.5° | 0.4 | 0.4   | 0.4 | 0.4   | 0.4  |
| 155°   | 0.4 | 0.4   | 0.4 | 0.4   | 0.4  |
| 157.5° | 0.4 | 0.4   | 0.4 | 0.4   | 0.4  |
| 160°   | 0.9 | 0.4   | 0.4 | 0.4   | 0.4  |
| 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: P1215790

CATALOG NUMBER: 24-ID2-35-CFD1-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 | 12.44            | 14.02 | 12.83 | 14.37 | 14.72 | 12.47          | 14.05 | 12.86 | 14.40 | 14.75 |
|                 | 3H   | 14.12            | 15.55 | 14.52 | 15.91 | 16.31 | 14.23          | 15.66 | 14.63 | 16.02 | 16.41 |
|                 | 4H   | 14.72            | 16.07 | 15.15 | 16.45 | 16.86 | 14.90          | 16.25 | 15.32 | 16.63 | 17.04 |
|                 | 6H   | 15.15            | 16.40 | 15.58 | 16.79 | 17.22 | 15.42          | 16.67 | 15.85 | 17.06 | 17.49 |
|                 | 8H   | 15.28            | 16.47 | 15.72 | 16.89 | 17.32 | 15.60          | 16.80 | 16.05 | 17.22 | 17.65 |
|                 | 12H  | 15.36            | 16.50 | 15.81 | 16.91 | 17.38 | 15.76          | 16.90 | 16.21 | 17.31 | 17.78 |
| 4H              | 2H   | 13.04            | 14.38 | 13.46 | 14.76 | 15.17 | 13.06          | 14.41 | 13.48 | 14.79 | 15.20 |
|                 | 3H   | 14.94            | 16.07 | 15.37 | 16.49 | 16.93 | 15.04          | 16.17 | 15.47 | 16.60 | 17.03 |
|                 | 4H   | 15.67            | 16.69 | 16.12 | 17.13 | 17.60 | 15.84          | 16.87 | 16.30 | 17.31 | 17.78 |
|                 | 6H   | 16.21            | 17.11 | 16.69 | 17.58 | 18.07 | 16.49          | 17.39 | 16.97 | 17.85 | 18.34 |
|                 | 8H   | 16.38            | 17.22 | 16.87 | 17.69 | 18.19 | 16.73          | 17.57 | 17.21 | 18.04 | 18.54 |
|                 | 12H  | 16.51            | 17.26 | 17.01 | 17.76 | 18.27 | 16.94          | 17.69 | 17.44 | 18.19 | 18.70 |
| 8H              | 4H   | 15.97            | 16.81 | 16.45 | 17.27 | 17.77 | 16.12          | 16.96 | 16.61 | 17.43 | 17.93 |
|                 | 6H   | 16.63            | 17.33 | 17.15 | 17.85 | 18.35 | 16.90          | 17.60 | 17.41 | 18.11 | 18.62 |
|                 | 8H   | 16.87            | 17.50 | 17.41 | 18.03 | 18.55 | 17.22          | 17.84 | 17.75 | 18.38 | 18.90 |
|                 | 12H  | 17.07            | 17.62 | 17.60 | 18.14 | 18.73 | 17.52          | 18.07 | 18.05 | 18.59 | 19.18 |
| 12H             | 4H   | 16.00            | 16.76 | 16.50 | 17.26 | 17.76 | 16.15          | 16.90 | 16.65 | 17.41 | 17.91 |
|                 | 6H   | 16.69            | 17.32 | 17.22 | 17.85 | 18.37 | 16.94          | 17.57 | 17.47 | 18.10 | 18.62 |
|                 | 8H   | 16.99            | 17.55 | 17.52 | 18.06 | 18.66 | 17.32          | 17.88 | 17.85 | 18.40 | 18.99 |



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

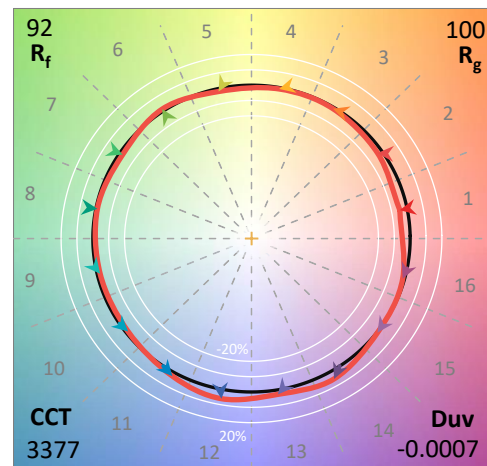
### Test Information

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  
 Rf: 91.8  
 Rg: 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

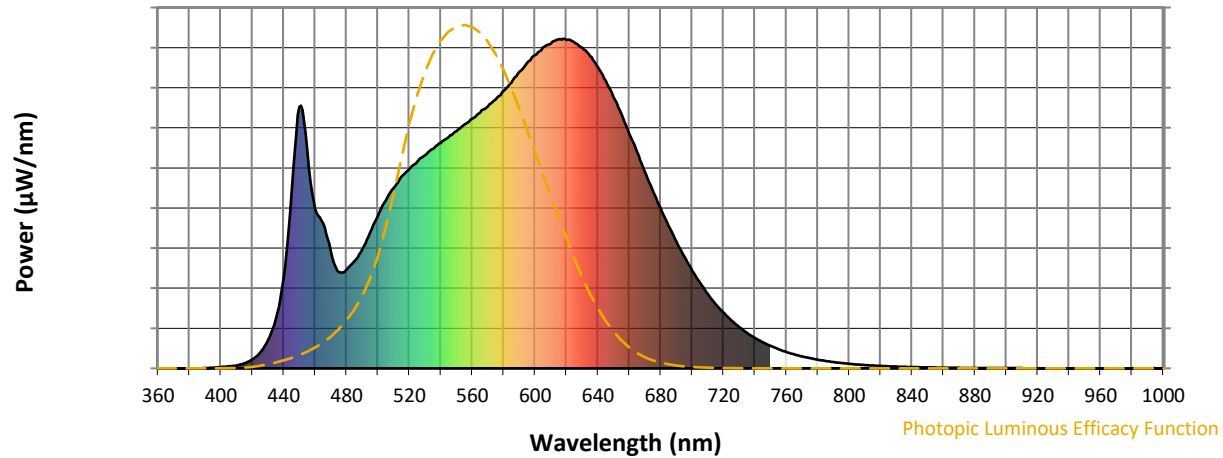
REPORT NUMBER: SP1-2506-458-10

| 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

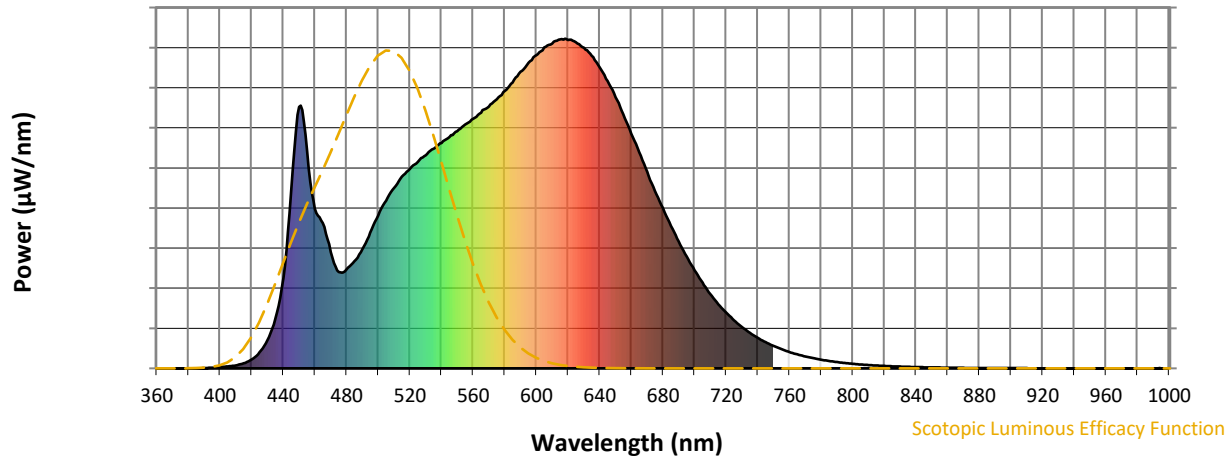


### Photopic Lumens: NR

| $\lambda$<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                             |                   |                                      |                                |

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### Scotopic Flux vs. Wavelength



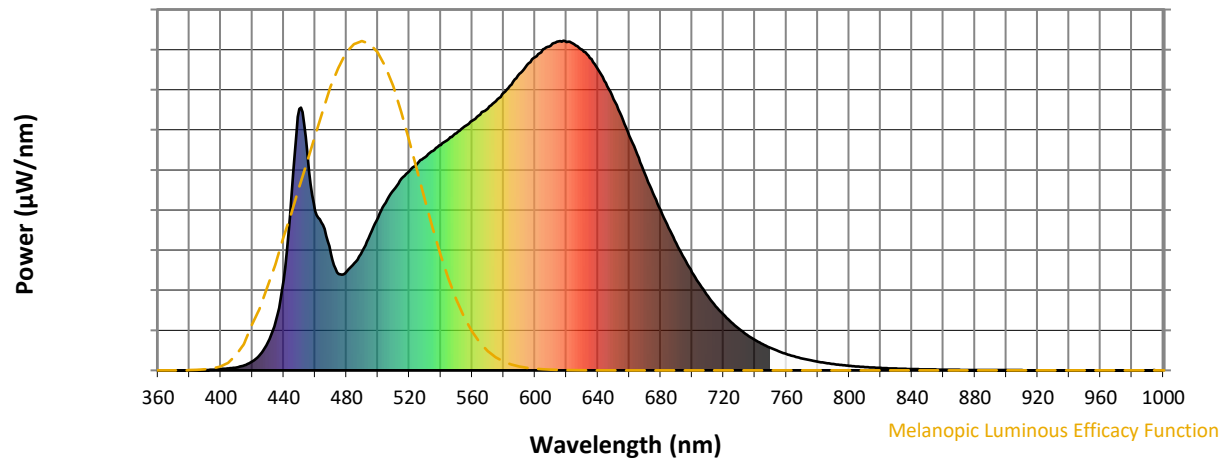
Scotopic Lumens: NR

S/P: 1.58

| 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       | 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               |           |                             |                  |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.19

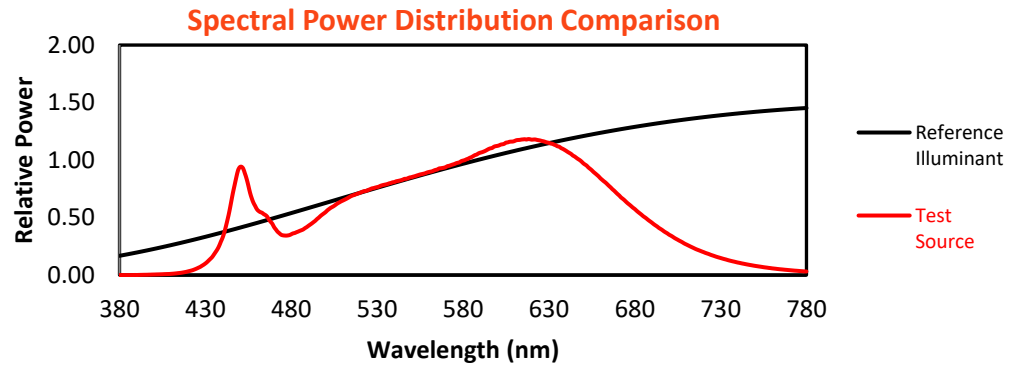
| λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 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               |           |                             |                  |

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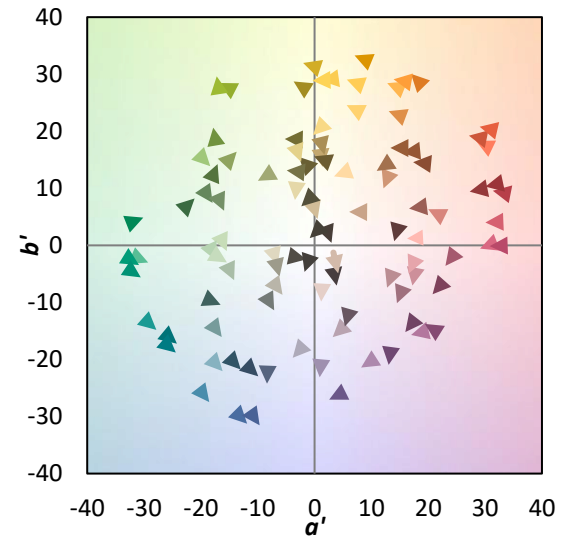
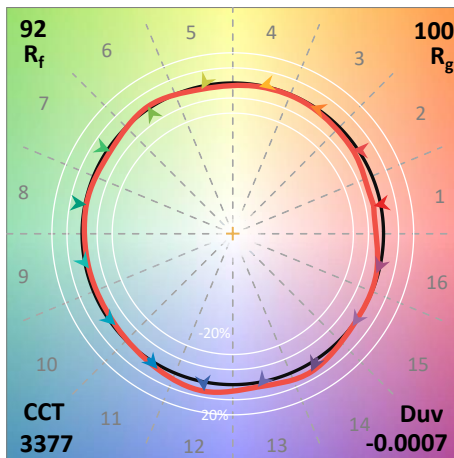
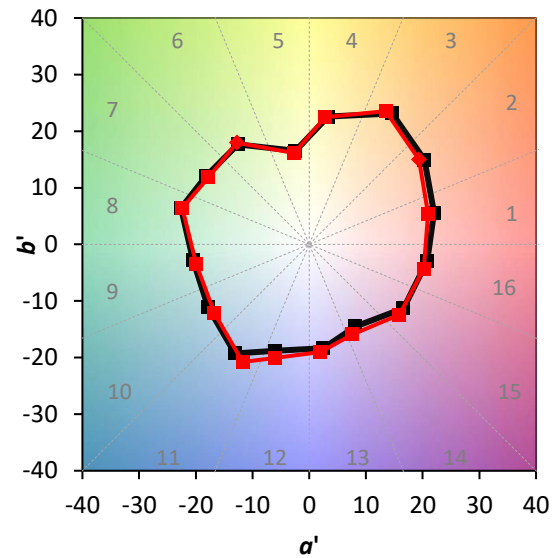
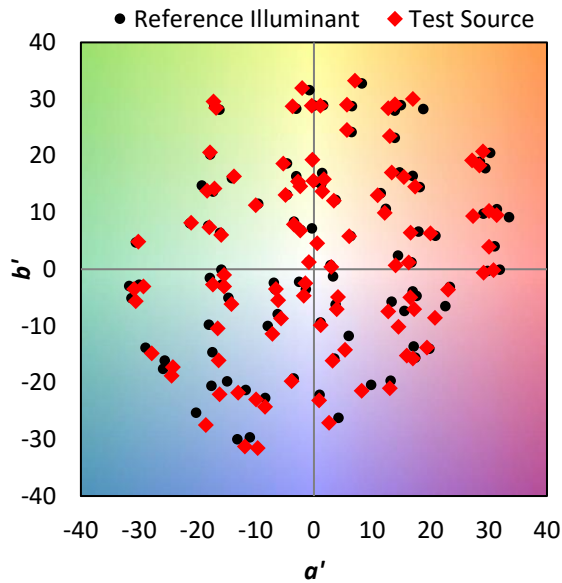
TM-30-18

### Summary

$R_f = 91.8$   
 $R_g = 99.6$   
 $\text{CIE } R_a = 93.6$   
 $R_9 = 64.2$



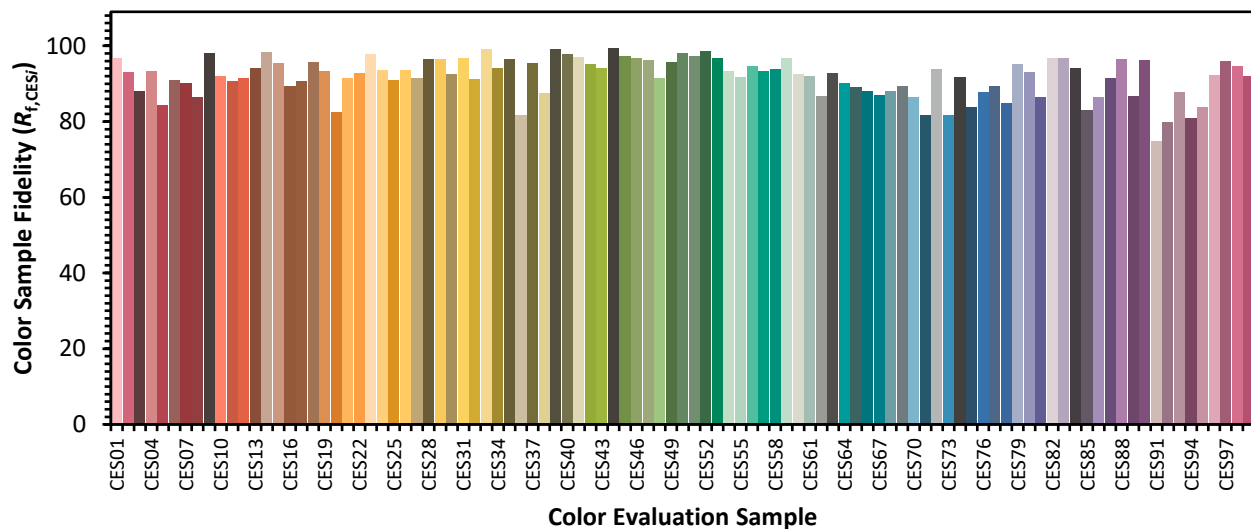
### Color Vector Graphics

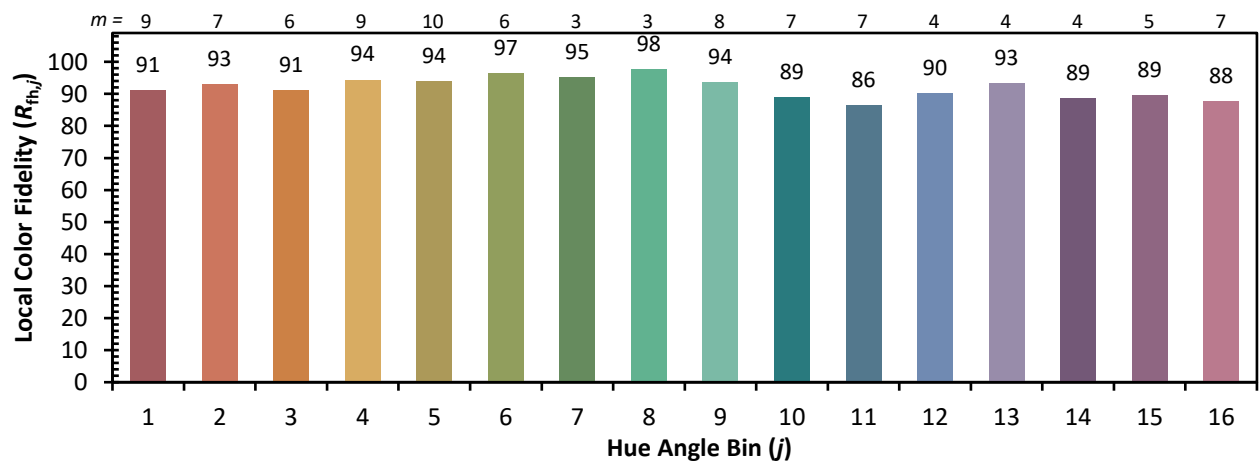
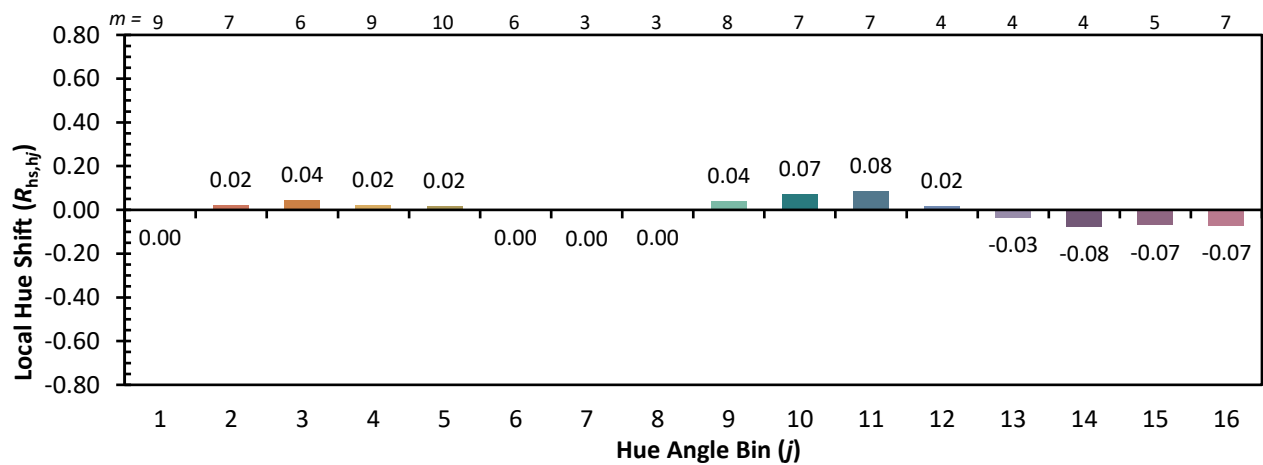
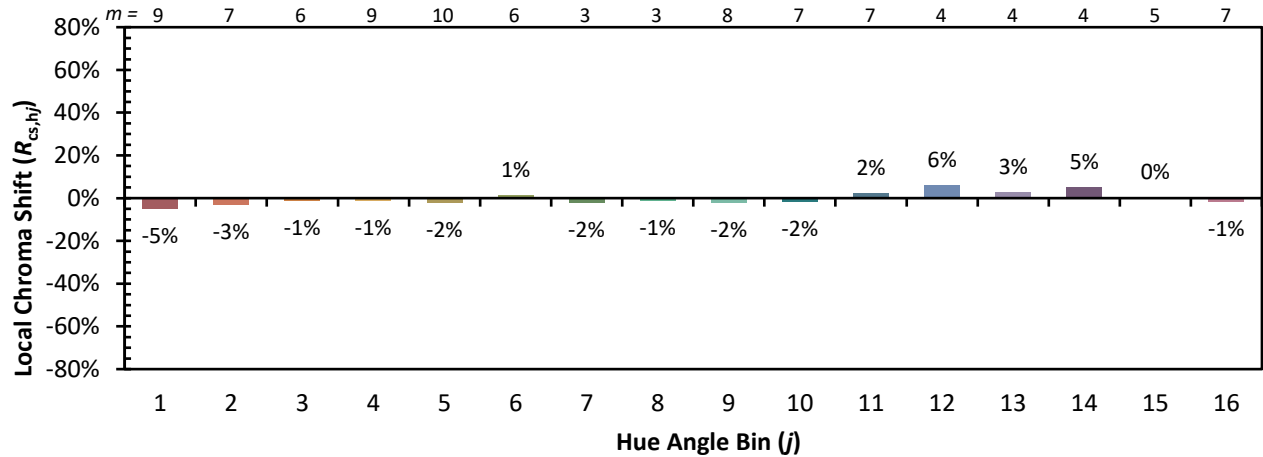




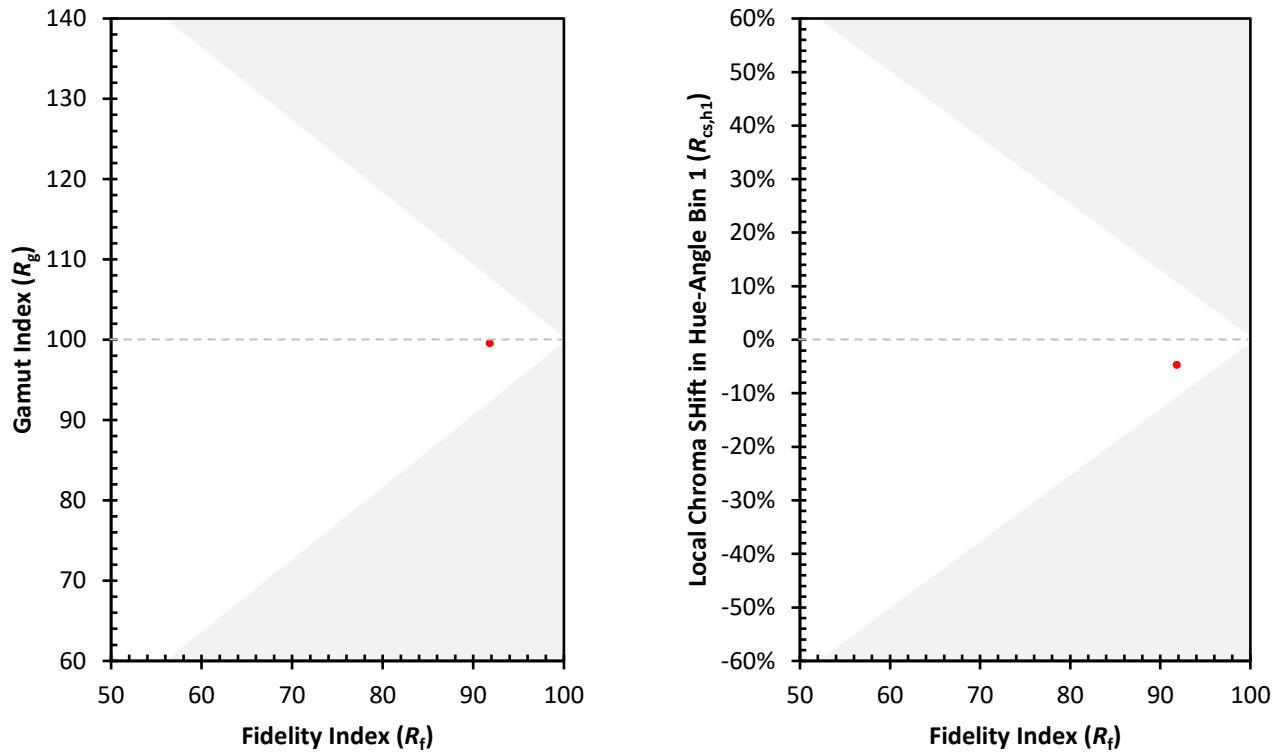
**Individual Sample Fidelity Index ( $R_{f,i}$ )**

|            |            |            |            |
|------------|------------|------------|------------|
| 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)