

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: P1215104

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

Issue Date: 12/4/2025

**Test Information**

Test Method: LM-79-2019  
Report Number: P1215104  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2506-458-17)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/4/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: CORELITE  
Catalog Number: 22-ID2-35-DBD-L950-U  
Description: 2X2 IN DEPTH TROFFER WITH 2INCH DOUBLE BARREL DROP  
Light Source: 5000K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

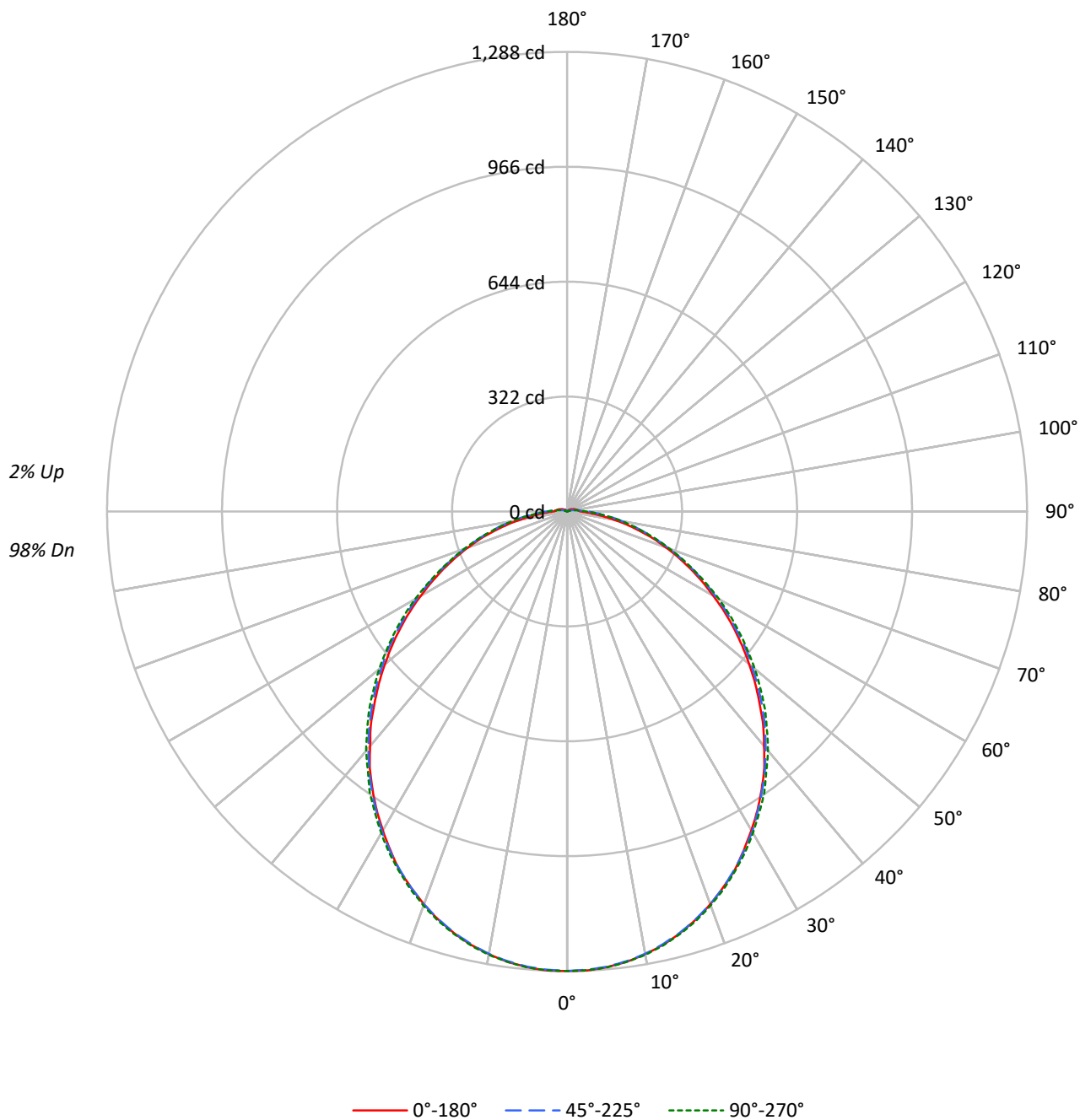
Lumens per Lamp: N/A  
Luminaire Lumens: 3483.0 lumens  
Efficiency: N/A  
Efficacy: 111.6 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.2 / 1.31  
Luminous Opening: Rectangular w/ Sides (W: 2' x L: 2' x H: 0.15')  
CIE Type: Direct

Input Watts (W): 31.2  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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

### Luminous Intensity Polar Plot



TEST NUMBER: P1215104

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

|     |     |     |     |     |     |     |     |     |     |     |     |  |     |     |     |  |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|-----|-----|-----|--|----|
| RF  | 20  |     |     |     | 20  |     |     |     | 20  |     |     |  | 20  |     |     |  | 20 |
| RC  | 80  |     |     |     | 70  |     |     |     | 50  |     |     |  | 30  |     |     |  | 0  |
| RW  | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50  | 30  | 10  |  | 50  | 30  | 10  |  | 0  |
| RCR |     |     |     |     |     |     |     |     |     |     |     |  |     |     |     |  |    |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 110 | 110 | 110 |  | 105 | 105 | 105 |  | 98 |
| 1   | 108 | 103 | 99  | 95  | 105 | 101 | 97  | 93  | 96  | 93  | 90  |  | 92  | 89  | 87  |  | 81 |
| 2   | 98  | 90  | 83  | 77  | 95  | 88  | 82  | 76  | 84  | 79  | 74  |  | 80  | 76  | 72  |  | 68 |
| 3   | 90  | 79  | 71  | 64  | 87  | 77  | 70  | 64  | 74  | 68  | 62  |  | 71  | 66  | 61  |  | 57 |
| 4   | 82  | 70  | 62  | 55  | 80  | 69  | 61  | 54  | 66  | 59  | 53  |  | 63  | 57  | 52  |  | 49 |
| 5   | 76  | 63  | 54  | 47  | 73  | 62  | 53  | 47  | 59  | 52  | 46  |  | 57  | 51  | 46  |  | 43 |
| 6   | 70  | 57  | 48  | 41  | 68  | 56  | 47  | 41  | 54  | 46  | 41  |  | 52  | 45  | 40  |  | 38 |
| 7   | 65  | 52  | 43  | 37  | 63  | 51  | 42  | 37  | 49  | 42  | 36  |  | 47  | 41  | 36  |  | 33 |
| 8   | 61  | 47  | 39  | 33  | 59  | 46  | 38  | 33  | 45  | 38  | 32  |  | 43  | 37  | 32  |  | 30 |
| 9   | 57  | 43  | 35  | 30  | 55  | 43  | 35  | 29  | 41  | 34  | 29  |  | 40  | 34  | 29  |  | 27 |
| 10  | 53  | 40  | 32  | 27  | 52  | 39  | 32  | 27  | 38  | 31  | 27  |  | 37  | 31  | 26  |  | 24 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 3465 | 3465 | 3465 |
| 5°  | 3441 | 3427 | 3442 |
| 10° | 3397 | 3377 | 3402 |
| 15° | 3341 | 3310 | 3346 |
| 20° | 3266 | 3230 | 3276 |
| 25° | 3184 | 3135 | 3191 |
| 30° | 3073 | 3035 | 3100 |
| 35° | 2964 | 2915 | 3004 |
| 40° | 2835 | 2790 | 2893 |
| 45° | 2699 | 2657 | 2773 |
| 50° | 2557 | 2513 | 2638 |
| 55° | 2413 | 2357 | 2493 |
| 60° | 2253 | 2197 | 2341 |
| 65° | 2094 | 2032 | 2163 |
| 70° | 1917 | 1850 | 1992 |
| 75° | 1699 | 1677 | 1821 |
| 80° | 1443 | 1509 | 1691 |
| 85° | 1192 | 1355 | 1599 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 2773 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 121.6  | 3.5       |
| 10°-20°   | 344.7  | 9.9       |
| 20°-30°   | 510.7  | 14.7      |
| 30°-40°   | 596.6  | 17.1      |
| 40°-50°   | 596.0  | 17.1      |
| 50°-60°   | 518.4  | 14.9      |
| 60°-70°   | 387.0  | 11.1      |
| 70°-80°   | 236.1  | 6.8       |
| 80°-90°   | 104.1  | 3.0       |
| 90°-100°  | 38.1   | 1.1       |
| 100°-110° | 15.9   | 0.5       |
| 110°-120° | 7.5    | 0.2       |
| 120°-130° | 3.9    | 0.1       |
| 130°-140° | 1.7    | 0.0       |
| 140°-150° | 0.6    | 0.0       |
| 150°-160° | 0.2    | 0.0       |
| 160°-170° | 0.0    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-30°    | 977.0  | 28.0      |
| 0°-40°    | 1573.6 | 45.2      |
| 0°-60°    | 2688.0 | 77.2      |
| 0°-90°    | 3415.2 | 98.1      |
| 90°-120°  | 61.5   | 1.8       |
| 90°-150°  | 67.6   | 1.9       |
| 90°-180°  | 68.0   | 2.0       |
| 0°-180°   | 3483.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 1288 | 1288  | 1288 | 1288  | 1288 |      |
| 5°   | 1282 | 1281  | 1280 | 1281  | 1282 | 122  |
| 15°  | 1223 | 1222  | 1222 | 1223  | 1225 | 345  |
| 25°  | 1110 | 1108  | 1108 | 1110  | 1112 | 510  |
| 35°  | 950  | 950   | 953  | 959   | 962  | 594  |
| 45°  | 762  | 767   | 772  | 778   | 783  | 589  |
| 55°  | 570  | 572   | 579  | 586   | 588  | 509  |
| 65°  | 382  | 386   | 392  | 396   | 394  | 378  |
| 75°  | 209  | 217   | 225  | 227   | 224  | 223  |
| 85°  | 72   | 88    | 97   | 99    | 96   | 72   |
| 90°  | 37   | 49    | 56   | 57    | 52   | 22   |
| 95°  | 31   | 32    | 35   | 36    | 34   | 25   |
| 105° | 23   | 20    | 13   | 9     | 8    | 24   |
| 115° | 15   | 13    | 8    | 1     | 0    | 15   |
| 125° | 9    | 8     | 4    | 0     | 0    | 8    |
| 135° | 5    | 4     | 1    | 0     | 0    | 4    |
| 145° | 2    | 1     | 0    | 0     | 0    | 1    |
| 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°     | 1287.7 | 1287.7 | 1287.7 | 1287.7 | 1287.7 |
| 2.5°   | 1287.7 | 1286.4 | 1285.5 | 1286.4 | 1287.2 |
| 5°     | 1282.1 | 1280.8 | 1280.4 | 1281.2 | 1282.5 |
| 7.5°   | 1273.1 | 1272.2 | 1271.4 | 1272.6 | 1273.5 |
| 10°    | 1259.8 | 1258.5 | 1258.9 | 1260.2 | 1261.5 |
| 12.5°  | 1243.9 | 1242.6 | 1241.7 | 1243.0 | 1245.6 |
| 15°    | 1223.3 | 1222.0 | 1222.0 | 1223.3 | 1225.0 |
| 17.5°  | 1199.2 | 1199.2 | 1197.9 | 1200.5 | 1202.6 |
| 20°    | 1171.7 | 1171.3 | 1171.3 | 1173.0 | 1175.1 |
| 22.5°  | 1140.8 | 1140.8 | 1141.2 | 1143.8 | 1145.5 |
| 25°    | 1109.9 | 1107.7 | 1108.1 | 1110.3 | 1112.4 |
| 27.5°  | 1070.8 | 1071.2 | 1072.9 | 1075.1 | 1078.5 |
| 30°    | 1031.7 | 1033.0 | 1036.4 | 1038.1 | 1040.7 |
| 32.5°  | 992.2  | 993.0  | 994.8  | 999.5  | 1001.2 |
| 35°    | 949.7  | 950.5  | 953.1  | 958.7  | 962.5  |
| 37.5°  | 907.1  | 906.3  | 910.1  | 915.7  | 916.2  |
| 40°    | 857.7  | 861.2  | 865.0  | 870.2  | 875.3  |
| 42.5°  | 813.5  | 815.2  | 819.9  | 824.7  | 828.1  |
| 45°    | 762.4  | 766.7  | 772.3  | 777.8  | 783.4  |
| 47.5°  | 714.7  | 719.9  | 724.2  | 731.0  | 734.0  |
| 50°    | 665.3  | 670.9  | 676.1  | 682.9  | 686.4  |
| 52.5°  | 617.6  | 621.5  | 630.1  | 635.2  | 636.1  |
| 55°    | 569.5  | 572.5  | 578.6  | 586.3  | 588.4  |
| 57.5°  | 521.4  | 525.3  | 531.7  | 538.6  | 539.5  |
| 60°    | 472.9  | 477.6  | 483.2  | 488.8  | 491.4  |
| 62.5°  | 426.9  | 431.2  | 436.8  | 441.5  | 441.1  |
| 65°    | 381.8  | 385.7  | 391.7  | 395.6  | 394.3  |
| 67.5°  | 337.2  | 341.5  | 347.0  | 350.1  | 349.2  |
| 70°    | 293.8  | 297.2  | 303.7  | 306.7  | 305.4  |
| 72.5°  | 253.4  | 258.1  | 263.3  | 266.7  | 265.0  |
| 75°    | 209.2  | 216.9  | 225.1  | 227.2  | 224.2  |
| 77.5°  | 170.9  | 179.5  | 189.4  | 192.0  | 189.0  |
| 80°    | 132.7  | 146.0  | 155.9  | 158.9  | 155.5  |
| 82.5°  | 100.1  | 114.7  | 125.8  | 128.4  | 124.1  |
| 85°    | 71.7   | 87.6   | 97.1   | 99.2   | 96.2   |
| 87.5°  | 50.7   | 65.3   | 73.4   | 74.7   | 70.4   |
| 90°    | 36.9   | 49.4   | 55.8   | 56.7   | 52.4   |
| 92.5°  | 33.9   | 39.1   | 44.2   | 45.5   | 43.0   |
| 95°    | 31.4   | 31.8   | 35.2   | 35.6   | 33.5   |
| 97.5°  | 29.2   | 27.1   | 27.5   | 27.1   | 25.3   |
| 100°   | 27.1   | 24.5   | 21.0   | 19.8   | 18.5   |
| 102.5° | 25.3   | 22.3   | 16.3   | 13.7   | 12.5   |
| 105°   | 23.2   | 20.2   | 12.9   | 8.6    | 7.7    |
| 107.5° | 21.0   | 18.5   | 11.2   | 5.2    | 3.9    |
| 110°   | 18.9   | 16.3   | 9.9    | 2.6    | 1.3    |

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**CANDELA DISTRIBUTION (continued):**

|        | 0°   | 22.5° | 45° | 67.5° | 90° |
|--------|------|-------|-----|-------|-----|
| 112.5° | 17.2 | 14.6  | 9.0 | 2.1   | 0.0 |
| 115°   | 15.0 | 13.3  | 7.7 | 1.3   | 0.0 |
| 117.5° | 13.3 | 11.6  | 6.9 | 0.9   | 0.0 |
| 120°   | 12.0 | 10.3  | 6.0 | 0.4   | 0.0 |
| 122.5° | 10.7 | 9.0   | 5.2 | 0.4   | 0.0 |
| 125°   | 9.0  | 7.7   | 4.3 | 0.4   | 0.0 |
| 127.5° | 8.2  | 6.9   | 3.4 | 0.0   | 0.0 |
| 130°   | 6.9  | 5.6   | 3.0 | 0.0   | 0.0 |
| 132.5° | 6.0  | 4.7   | 2.1 | 0.4   | 0.0 |
| 135°   | 4.7  | 3.9   | 1.3 | 0.4   | 0.0 |
| 137.5° | 4.3  | 3.4   | 0.9 | 0.4   | 0.0 |
| 140°   | 3.4  | 2.6   | 0.9 | 0.4   | 0.0 |
| 142.5° | 2.6  | 2.1   | 0.4 | 0.4   | 0.4 |
| 145°   | 1.7  | 1.3   | 0.4 | 0.4   | 0.4 |
| 147.5° | 1.3  | 0.9   | 0.4 | 0.4   | 0.4 |
| 150°   | 0.9  | 0.9   | 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°   | 0.4  | 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 |

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**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 | 14.66            | 16.24 | 15.06 | 16.60 | 16.96 | 14.85          | 16.43 | 15.24 | 16.78 | 17.15 |
|                 | 3H   | 16.33            | 17.76 | 16.74 | 18.13 | 18.54 | 16.53          | 17.96 | 16.94 | 18.33 | 18.74 |
|                 | 4H   | 16.96            | 18.31 | 17.39 | 18.70 | 19.12 | 17.19          | 18.54 | 17.62 | 18.93 | 19.36 |
|                 | 6H   | 17.43            | 18.68 | 17.87 | 19.09 | 19.53 | 17.74          | 18.99 | 18.18 | 19.40 | 19.84 |
|                 | 8H   | 17.59            | 18.78 | 18.04 | 19.21 | 19.66 | 17.95          | 19.15 | 18.41 | 19.58 | 20.03 |
|                 | 12H  | 17.71            | 18.85 | 18.17 | 19.27 | 19.75 | 18.14          | 19.28 | 18.60 | 19.71 | 20.18 |
| 4H              | 2H   | 15.25            | 16.60 | 15.68 | 16.99 | 17.41 | 15.40          | 16.75 | 15.83 | 17.13 | 17.56 |
|                 | 3H   | 17.14            | 18.28 | 17.58 | 18.71 | 19.16 | 17.31          | 18.45 | 17.75 | 18.88 | 19.33 |
|                 | 4H   | 17.90            | 18.93 | 18.36 | 19.38 | 19.86 | 18.11          | 19.14 | 18.57 | 19.59 | 20.07 |
|                 | 6H   | 18.50            | 19.41 | 18.99 | 19.88 | 20.38 | 18.80          | 19.71 | 19.29 | 20.18 | 20.68 |
|                 | 8H   | 18.72            | 19.56 | 19.21 | 20.04 | 20.55 | 19.08          | 19.93 | 19.57 | 20.41 | 20.92 |
|                 | 12H  | 18.89            | 19.65 | 19.40 | 20.16 | 20.68 | 19.33          | 20.09 | 19.84 | 20.60 | 21.12 |
| 8H              | 4H   | 18.21            | 19.06 | 18.71 | 19.54 | 20.05 | 18.40          | 19.25 | 18.89 | 19.73 | 20.24 |
|                 | 6H   | 18.96            | 19.67 | 19.48 | 20.19 | 20.71 | 19.24          | 19.95 | 19.76 | 20.47 | 20.99 |
|                 | 8H   | 19.26            | 19.90 | 19.80 | 20.44 | 20.97 | 19.61          | 20.25 | 20.15 | 20.79 | 21.32 |
|                 | 12H  | 19.53            | 20.10 | 20.07 | 20.62 | 21.22 | 19.97          | 20.54 | 20.51 | 21.06 | 21.67 |
| 12H             | 4H   | 18.26            | 19.02 | 18.77 | 19.53 | 20.05 | 18.43          | 19.20 | 18.95 | 19.71 | 20.22 |
|                 | 6H   | 19.04            | 19.68 | 19.58 | 20.22 | 20.75 | 19.30          | 19.94 | 19.84 | 20.48 | 21.01 |
|                 | 8H   | 19.41            | 19.97 | 19.94 | 20.50 | 21.10 | 19.75          | 20.31 | 20.28 | 20.84 | 21.44 |

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

Report Prepared for

Cooper Lighting Solutions

Corelite

Report Number: SP1-2506-458-13

Test Date: 08/27/2025

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

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

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2506-458-13  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 08/27/2025  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: Corelite  
 Catalog Number: **22ID2-55-CFR1-L950-U**  
 Description: 2X2 CGTX WITH INDEPTH FRAME AND CFR1 LENS - 5500 LUMEN 5000K 90CRI

### Spectral Parameters

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

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



### Test Conditions

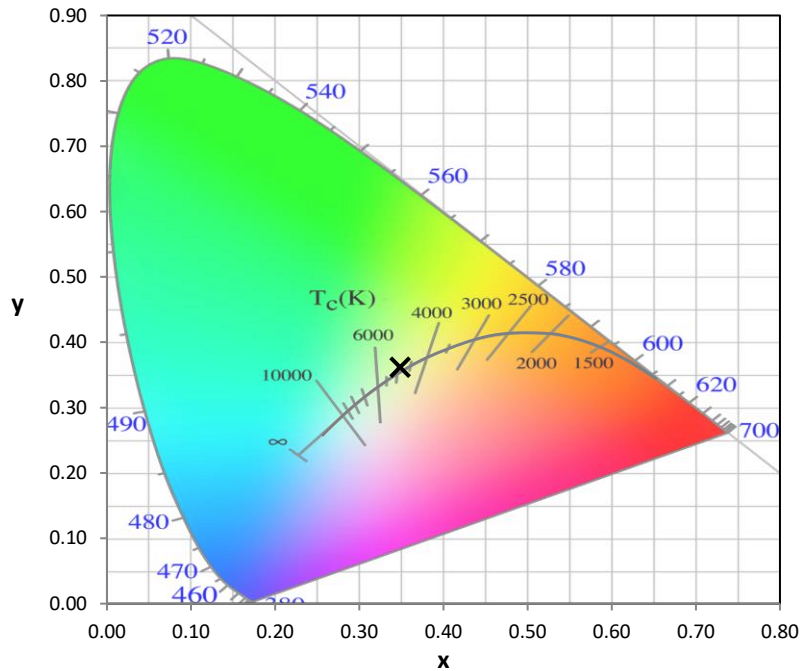
Stabilization Time: M  
 Operation Time: 1H 0M  
 Sphere Temperature (°C): 25.0

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

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**CIE 1931 Chromaticity Diagram**



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



Point lies inside the ANSI 5000K 4-step quadrangle

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### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

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

REPORT NUMBER: SP1-2506-458-13

### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 2.09

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

REPORT NUMBER: SP1-2506-458-13

### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 4.55

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

REPORT NUMBER: SP1-2506-458-13

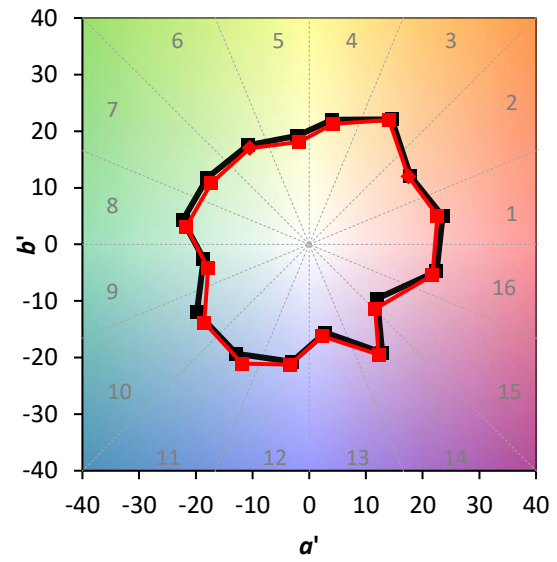
TM-30-18

### Summary

$R_f = 90.8$   
 $R_g = 97.4$   
 $\text{CIE } R_a = 94.0$   
 $R_9 = 77.7$



### Color Vector Graphics

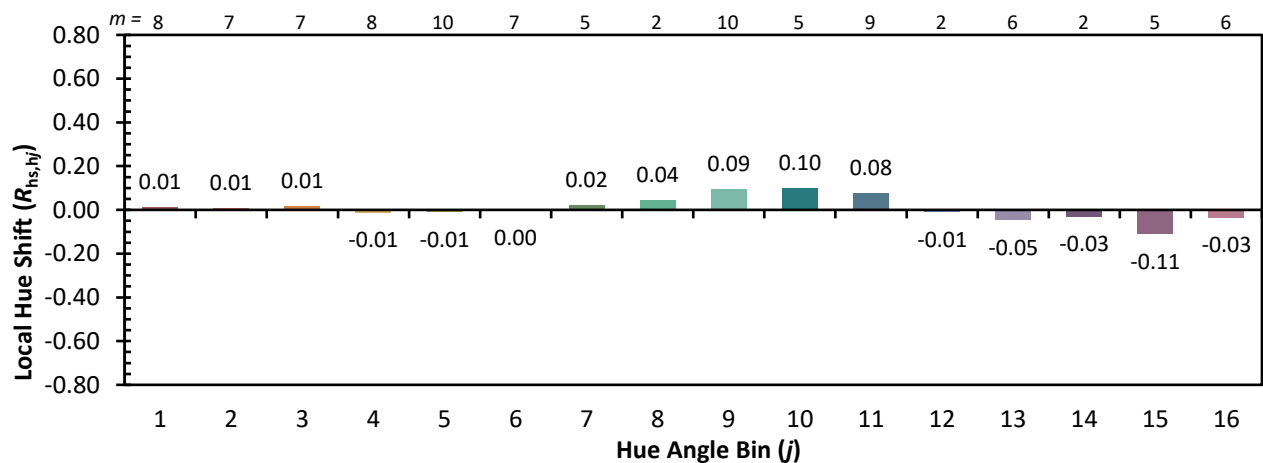


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

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



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)