

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: P1214840

Luminaire Tested: 22-ID2-35-CFD2-L950-U

Issue Date: 12/4/2025

**Test Information**

Test Method: LM-79-2019  
Report Number: P1214840  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2506-458-13)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/4/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: CORELITE  
Catalog Number: 22-ID2-35-CFD2-L950-U  
Description: 2X2 IN DEPTH TROFFER WITH 2INCH CUBE DROP LENS  
Light Source: 5000K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

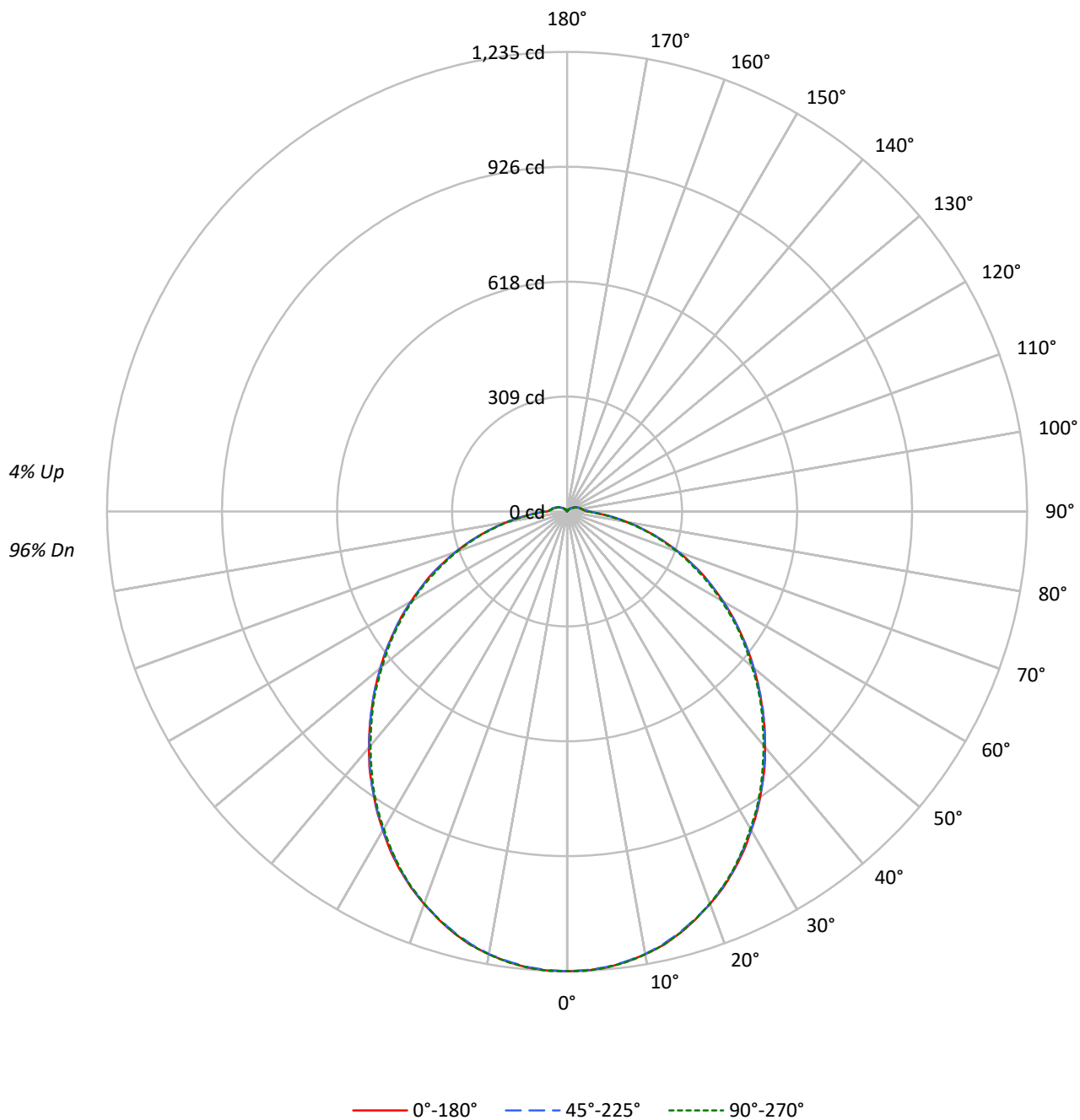
Lumens per Lamp: N/A  
Luminaire Lumens: 3486.9 lumens  
Efficiency: N/A  
Efficacy: 111.8 lumens/watt  
Spacing Criteria (0/90/45): 1.19 / 1.19 / 1.31  
Luminous Opening: Rectangular w/ Sides (W: 2' x L: 2' x H: 0.16')  
CIE Type: Direct

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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### Luminous Intensity Polar Plot



TEST NUMBER: P1214840

CATALOG NUMBER: 22-ID2-35-CFD2-L950-U

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

|     |     |     |     |     |     |     |     |     |     |     |     |  |     |     |     |  |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|-----|-----|-----|--|----|
| RF  | 20  |     |     |     | 20  |     |     |     | 20  |     |     |  | 20  |     |     |  | 20 |
| RC  | 80  |     |     |     | 70  |     |     |     | 50  |     |     |  | 30  |     |     |  | 0  |
| RW  | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50  | 30  | 10  |  | 50  | 30  | 10  |  | 0  |
| RCR |     |     |     |     |     |     |     |     |     |     |     |  |     |     |     |  |    |
| 0   | 118 | 118 | 118 | 118 | 115 | 115 | 115 | 115 | 109 | 109 | 109 |  | 103 | 103 | 103 |  | 98 |
| 1   | 107 | 102 | 98  | 94  | 104 | 100 | 95  | 92  | 95  | 91  | 88  |  | 90  | 87  | 85  |  | 86 |
| 2   | 97  | 89  | 82  | 76  | 94  | 87  | 80  | 75  | 83  | 77  | 73  |  | 79  | 74  | 70  |  | 75 |
| 3   | 89  | 78  | 70  | 63  | 86  | 76  | 69  | 62  | 73  | 66  | 61  |  | 69  | 64  | 59  |  | 66 |
| 4   | 81  | 69  | 60  | 54  | 79  | 68  | 59  | 53  | 65  | 58  | 52  |  | 62  | 56  | 51  |  | 59 |
| 5   | 75  | 62  | 53  | 46  | 72  | 61  | 52  | 46  | 58  | 51  | 45  |  | 56  | 49  | 44  |  | 53 |
| 6   | 69  | 56  | 47  | 40  | 67  | 55  | 46  | 40  | 52  | 45  | 39  |  | 50  | 44  | 39  |  | 48 |
| 7   | 64  | 51  | 42  | 36  | 62  | 50  | 41  | 36  | 48  | 40  | 35  |  | 46  | 39  | 34  |  | 44 |
| 8   | 60  | 46  | 38  | 32  | 58  | 45  | 37  | 32  | 44  | 37  | 31  |  | 42  | 36  | 31  |  | 41 |
| 9   | 56  | 43  | 34  | 29  | 54  | 42  | 34  | 29  | 40  | 33  | 28  |  | 39  | 33  | 28  |  | 38 |
| 10  | 52  | 39  | 31  | 26  | 51  | 39  | 31  | 26  | 37  | 30  | 26  |  | 36  | 30  | 25  |  | 35 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 3324 | 3324 | 3324 |
| 5°  | 3299 | 3286 | 3299 |
| 10° | 3257 | 3235 | 3257 |
| 15° | 3200 | 3165 | 3198 |
| 20° | 3123 | 3086 | 3120 |
| 25° | 3040 | 2991 | 3031 |
| 30° | 2938 | 2883 | 2923 |
| 35° | 2831 | 2772 | 2819 |
| 40° | 2723 | 2650 | 2702 |
| 45° | 2608 | 2535 | 2594 |
| 50° | 2502 | 2410 | 2474 |
| 55° | 2395 | 2295 | 2373 |
| 60° | 2290 | 2174 | 2258 |
| 65° | 2188 | 2054 | 2141 |
| 70° | 2053 | 1913 | 2020 |
| 75° | 1906 | 1743 | 1867 |
| 80° | 1735 | 1541 | 1703 |
| 85° | 1587 | 1376 | 1539 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2608 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 116.6  | 3.3       |
| 10°-20°   | 330.2  | 9.5       |
| 20°-30°   | 487.9  | 14.0      |
| 30°-40°   | 568.6  | 16.3      |
| 40°-50°   | 571.2  | 16.4      |
| 50°-60°   | 508.5  | 14.6      |
| 60°-70°   | 396.4  | 11.4      |
| 70°-80°   | 252.7  | 7.2       |
| 80°-90°   | 113.6  | 3.3       |
| 90°-100°  | 52.7   | 1.5       |
| 100°-110° | 38.1   | 1.1       |
| 110°-120° | 25.4   | 0.7       |
| 120°-130° | 14.7   | 0.4       |
| 130°-140° | 7.2    | 0.2       |
| 140°-150° | 2.6    | 0.1       |
| 150°-160° | 0.5    | 0.0       |
| 160°-170° | 0.0    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-30°    | 934.7  | 26.8      |
| 0°-40°    | 1503.3 | 43.1      |
| 0°-60°    | 2583.0 | 74.1      |
| 0°-90°    | 3345.8 | 96.0      |
| 90°-120°  | 116.1  | 3.3       |
| 90°-150°  | 140.6  | 4.0       |
| 90°-180°  | 141.0  | 4.0       |
| 0°-180°   | 3486.9 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 1235 | 1235  | 1235 | 1235  | 1235 |      |
| 5°   | 1230 | 1228  | 1228 | 1229  | 1230 | 117  |
| 15°  | 1173 | 1172  | 1170 | 1171  | 1173 | 330  |
| 25°  | 1062 | 1061  | 1060 | 1058  | 1059 | 489  |
| 35°  | 910  | 911   | 911  | 906   | 906  | 570  |
| 45°  | 740  | 744   | 741  | 738   | 736  | 572  |
| 55°  | 569  | 571   | 568  | 566   | 564  | 509  |
| 65°  | 402  | 404   | 401  | 399   | 394  | 397  |
| 75°  | 238  | 241   | 238  | 238   | 233  | 252  |
| 85°  | 98   | 102   | 102  | 101   | 95   | 94   |
| 90°  | 53   | 58    | 60   | 58    | 54   | 31   |
| 95°  | 45   | 48    | 49   | 48    | 45   | 36   |
| 105° | 35   | 36    | 37   | 36    | 35   | 37   |
| 115° | 26   | 25    | 26   | 25    | 25   | 26   |
| 125° | 17   | 16    | 17   | 16    | 17   | 16   |
| 135° | 10   | 9     | 9    | 9     | 10   | 8    |
| 145° | 6    | 4     | 3    | 4     | 5    | 3    |
| 155° | 1    | 1     | 0    | 1     | 1    | 1    |
| 165° | 0    | 0     | 0    | 0     | 0    | 0    |
| 175° | 0    | 0     | 0    | 0     | 0    | 0    |
| 180° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 1235.4 | 1235.4 | 1235.4 | 1235.4 | 1235.4 |
| 2.5°   | 1234.5 | 1233.6 | 1233.2 | 1234.1 | 1235.4 |
| 5°     | 1229.8 | 1228.5 | 1228.5 | 1228.9 | 1229.8 |
| 7.5°   | 1220.7 | 1219.9 | 1219.0 | 1220.3 | 1221.2 |
| 10°    | 1208.7 | 1207.9 | 1207.4 | 1207.9 | 1208.7 |
| 12.5°  | 1193.3 | 1191.1 | 1191.1 | 1192.0 | 1193.3 |
| 15°    | 1173.1 | 1172.2 | 1170.5 | 1171.3 | 1172.6 |
| 17.5°  | 1148.6 | 1149.4 | 1147.3 | 1147.7 | 1148.2 |
| 20°    | 1122.4 | 1122.0 | 1122.0 | 1121.5 | 1121.1 |
| 22.5°  | 1094.5 | 1092.7 | 1092.3 | 1090.6 | 1091.9 |
| 25°    | 1062.2 | 1061.0 | 1060.5 | 1058.4 | 1058.8 |
| 27.5°  | 1027.5 | 1025.7 | 1024.4 | 1023.6 | 1022.7 |
| 30°    | 989.2  | 989.2  | 988.4  | 986.6  | 984.1  |
| 32.5°  | 951.4  | 951.0  | 949.7  | 947.6  | 946.7  |
| 35°    | 910.2  | 911.0  | 910.6  | 906.3  | 906.3  |
| 37.5°  | 870.7  | 870.7  | 869.0  | 866.4  | 862.9  |
| 40°    | 827.3  | 828.1  | 826.0  | 823.0  | 820.8  |
| 42.5°  | 784.3  | 785.2  | 783.9  | 781.8  | 777.9  |
| 45°    | 740.1  | 743.5  | 741.4  | 738.4  | 736.2  |
| 47.5°  | 697.6  | 700.6  | 697.6  | 695.4  | 692.4  |
| 50°    | 654.6  | 656.8  | 653.3  | 651.6  | 647.3  |
| 52.5°  | 612.1  | 614.2  | 611.7  | 609.9  | 605.6  |
| 55°    | 568.7  | 570.9  | 568.3  | 566.1  | 563.6  |
| 57.5°  | 527.5  | 529.2  | 527.0  | 525.8  | 521.0  |
| 60°    | 484.5  | 487.1  | 483.2  | 481.9  | 477.6  |
| 62.5°  | 441.6  | 446.7  | 442.0  | 440.3  | 436.4  |
| 65°    | 402.5  | 403.8  | 400.8  | 398.6  | 393.9  |
| 67.5°  | 359.5  | 362.1  | 358.7  | 356.9  | 352.7  |
| 70°    | 318.3  | 321.3  | 318.7  | 317.0  | 313.1  |
| 72.5°  | 277.9  | 282.2  | 277.9  | 276.6  | 272.8  |
| 75°    | 238.0  | 241.4  | 238.4  | 237.5  | 233.2  |
| 77.5°  | 199.7  | 203.6  | 199.7  | 201.0  | 196.7  |
| 80°    | 162.8  | 167.1  | 163.2  | 164.1  | 159.8  |
| 82.5°  | 130.1  | 132.7  | 131.4  | 130.6  | 126.3  |
| 85°    | 98.4   | 102.2  | 102.2  | 100.9  | 95.4   |
| 87.5°  | 72.2   | 75.6   | 76.9   | 76.5   | 71.3   |
| 90°    | 53.3   | 58.0   | 59.7   | 58.4   | 54.1   |
| 92.5°  | 48.1   | 52.0   | 53.7   | 52.4   | 48.5   |
| 95°    | 44.7   | 48.1   | 49.4   | 48.5   | 45.1   |
| 97.5°  | 42.1   | 44.7   | 46.0   | 44.7   | 42.1   |
| 100°   | 39.9   | 41.7   | 43.0   | 41.7   | 39.5   |
| 102.5° | 37.4   | 38.7   | 39.9   | 38.7   | 36.9   |
| 105°   | 35.2   | 35.7   | 36.9   | 36.1   | 34.8   |
| 107.5° | 33.1   | 33.1   | 33.9   | 33.1   | 32.2   |
| 110°   | 30.5   | 30.5   | 31.4   | 30.5   | 29.6   |

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**CANDELA DISTRIBUTION (continued):**

|        | 0°   | 22.5° | 45°  | 67.5° | 90°  |
|--------|------|-------|------|-------|------|
| 112.5° | 27.9 | 27.9  | 28.8 | 27.5  | 27.5 |
| 115°   | 25.8 | 25.3  | 26.2 | 24.9  | 25.3 |
| 117.5° | 23.2 | 22.8  | 23.6 | 22.3  | 22.8 |
| 120°   | 21.0 | 20.2  | 21.0 | 19.8  | 20.6 |
| 122.5° | 19.3 | 18.0  | 18.9 | 17.6  | 18.5 |
| 125°   | 17.2 | 15.9  | 16.8 | 15.5  | 16.8 |
| 127.5° | 15.5 | 13.7  | 14.6 | 13.3  | 14.6 |
| 130°   | 13.7 | 12.0  | 12.5 | 11.2  | 13.3 |
| 132.5° | 12.0 | 10.3  | 10.7 | 9.9   | 11.6 |
| 135°   | 10.3 | 9.0   | 8.6  | 8.6   | 10.3 |
| 137.5° | 9.0  | 7.7   | 6.9  | 7.3   | 8.6  |
| 140°   | 7.7  | 6.4   | 5.2  | 6.0   | 7.3  |
| 142.5° | 6.4  | 5.2   | 3.9  | 5.2   | 6.4  |
| 145°   | 5.6  | 4.3   | 2.6  | 3.9   | 5.2  |
| 147.5° | 4.3  | 3.4   | 1.3  | 3.0   | 3.9  |
| 150°   | 3.4  | 2.1   | 0.4  | 2.1   | 2.6  |
| 152.5° | 2.1  | 1.7   | 0.4  | 1.3   | 1.7  |
| 155°   | 1.3  | 0.9   | 0.4  | 0.9   | 1.3  |
| 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 | 14.60            | 16.15 | 15.03 | 16.55 | 16.96 | 14.54          | 16.09 | 14.97 | 16.49 | 16.91 |
|                 | 3H   | 16.44            | 17.84 | 16.88 | 18.25 | 18.71 | 16.36          | 17.76 | 16.80 | 18.17 | 18.63 |
|                 | 4H   | 17.16            | 18.49 | 17.62 | 18.92 | 19.39 | 17.07          | 18.40 | 17.53 | 18.83 | 19.30 |
|                 | 6H   | 17.75            | 18.98 | 18.22 | 19.42 | 19.91 | 17.65          | 18.88 | 18.13 | 19.33 | 19.82 |
|                 | 8H   | 17.97            | 19.14 | 18.45 | 19.61 | 20.11 | 17.87          | 19.04 | 18.36 | 19.51 | 20.01 |
|                 | 12H  | 18.15            | 19.28 | 18.64 | 19.74 | 20.26 | 18.05          | 19.17 | 18.54 | 19.63 | 20.16 |
| 4H              | 2H   | 15.20            | 16.52 | 15.66 | 16.95 | 17.42 | 15.15          | 16.48 | 15.62 | 16.91 | 17.38 |
|                 | 3H   | 17.26            | 18.38 | 17.73 | 18.85 | 19.35 | 17.19          | 18.31 | 17.66 | 18.78 | 19.28 |
|                 | 4H   | 18.12            | 19.14 | 18.62 | 19.63 | 20.16 | 18.04          | 19.06 | 18.54 | 19.55 | 20.08 |
|                 | 6H   | 18.85            | 19.74 | 19.37 | 20.26 | 20.81 | 18.76          | 19.66 | 19.28 | 20.17 | 20.72 |
|                 | 8H   | 19.13            | 19.97 | 19.66 | 20.49 | 21.04 | 19.04          | 19.88 | 19.56 | 20.39 | 20.95 |
|                 | 12H  | 19.38            | 20.14 | 19.92 | 20.68 | 21.24 | 19.28          | 20.04 | 19.82 | 20.58 | 21.14 |
| 8H              | 4H   | 18.44            | 19.28 | 18.96 | 19.79 | 20.35 | 18.37          | 19.21 | 18.89 | 19.72 | 20.28 |
|                 | 6H   | 19.31            | 20.01 | 19.86 | 20.57 | 21.14 | 19.23          | 19.93 | 19.79 | 20.49 | 21.06 |
|                 | 8H   | 19.69            | 20.32 | 20.26 | 20.89 | 21.47 | 19.60          | 20.23 | 20.17 | 20.81 | 21.38 |
|                 | 12H  | 20.04            | 20.60 | 20.61 | 21.16 | 21.81 | 19.95          | 20.51 | 20.52 | 21.07 | 21.71 |
| 12H             | 4H   | 18.48            | 19.23 | 19.02 | 19.78 | 20.34 | 18.41          | 19.17 | 18.95 | 19.71 | 20.27 |
|                 | 6H   | 19.38            | 20.01 | 19.95 | 20.59 | 21.16 | 19.31          | 19.94 | 19.88 | 20.51 | 21.09 |
|                 | 8H   | 19.83            | 20.39 | 20.39 | 20.95 | 21.59 | 19.74          | 20.30 | 20.31 | 20.86 | 21.51 |

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

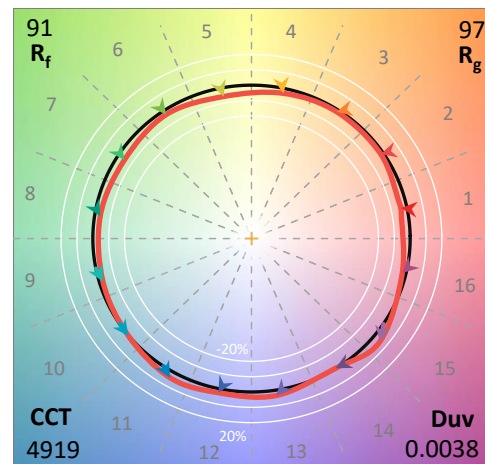
### Test Information

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                             |                   |                                      |                                |

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### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 2.09

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

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 4.55

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

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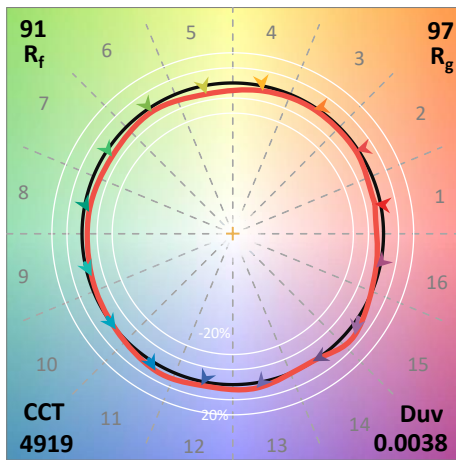
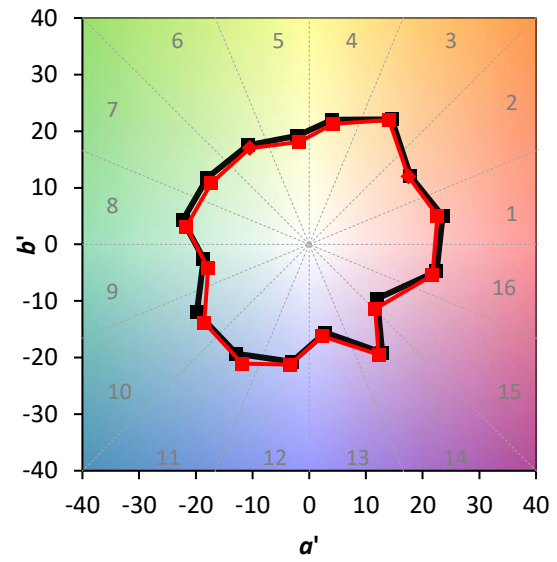
TM-30-18

### Summary

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



### Color Vector Graphics



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

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



**Color Rendition by Hue-Angle Bin**


**Measure Comparisons**



(END OF REPORT)