

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: P1215066

Luminaire Tested: 22-ID2-80-CNV-L835-U

Issue Date: 12/4/2025

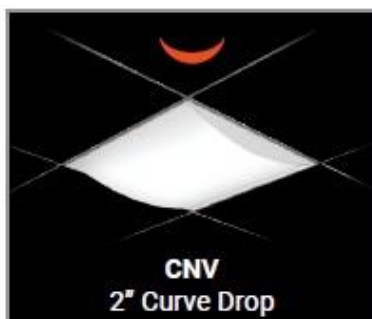
**Test Information**

Test Method: LM-79-2019  
Report Number: P1215066  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2506-458-15)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/4/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: CORELITE  
Catalog Number: 22-ID2-80-CNV-L835-U  
Description: 2X2 IN DEPTH TROFFER WITH 2INCH CURVE DROP  
Light Source: 3500K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

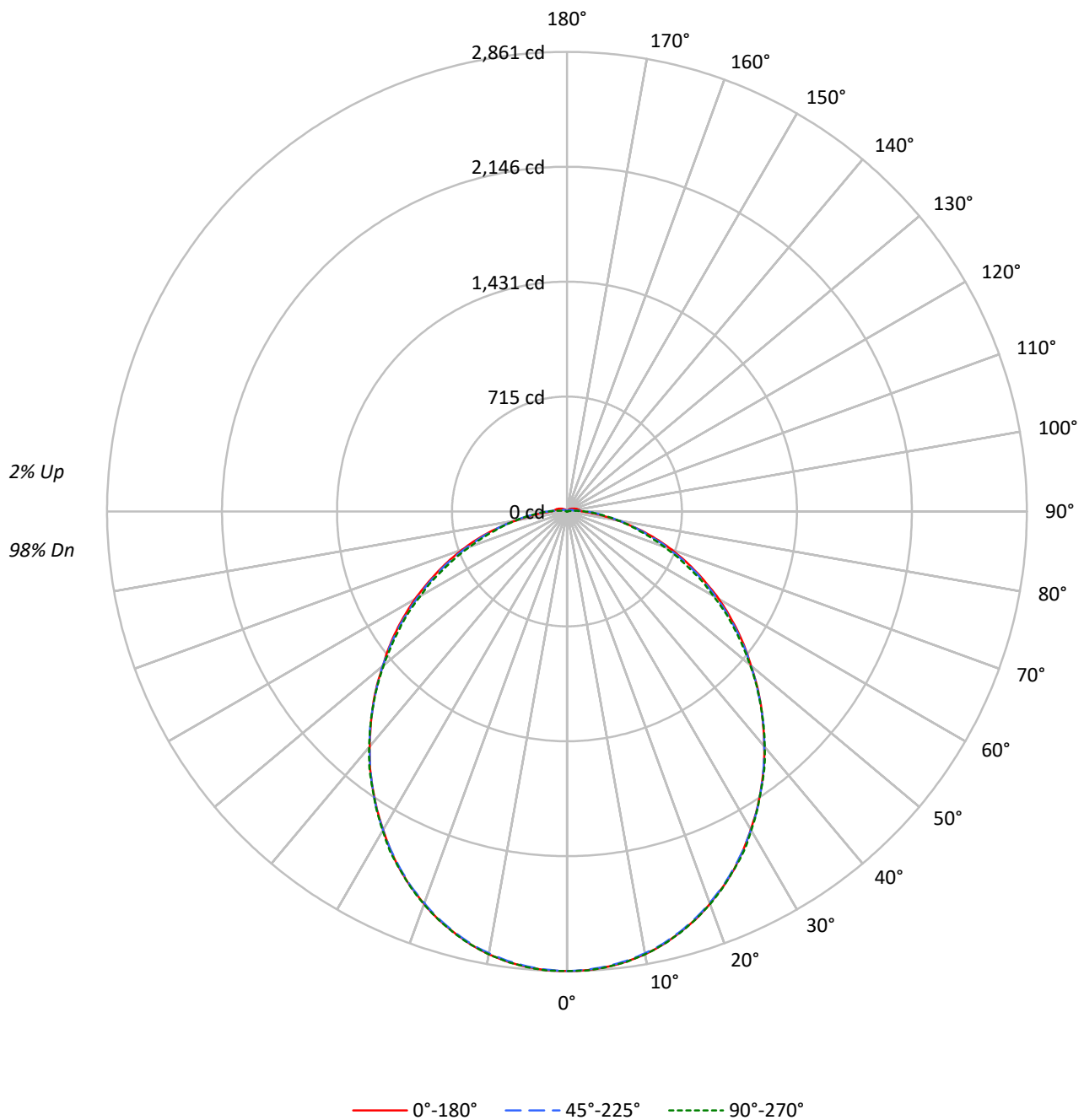
Lumens per Lamp: N/A  
Luminaire Lumens: 7700.5 lumens  
Efficiency: N/A  
Efficacy: 112.3 lumens/watt  
Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.31  
Luminous Opening: Rectangular w/ Sides (W: 2' x L: 2' x H: 0.16')  
CIE Type: Direct

Input Watts (W): 68.6  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



TEST NUMBER: P1215066  
CATALOG NUMBER: 22-ID2-80-CNV-L835-U

### Luminous Intensity Polar Plot



TEST NUMBER: P1215066

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

|     |     |     |     |     |     |     |     |     |  |     |     |     |  |     |     |     |  |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|-----|-----|-----|--|-----|-----|-----|--|-----|-----|-----|
| RF  | 20  |     |     |     | 20  |     |     |     |  | 20  |     |     |  |     | 20  |     |  |     |     | 20  |
| RC  | 80  |     |     |     | 70  |     |     |     |  | 50  |     |     |  |     | 30  |     |  |     |     | 0   |
| RW  | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  |  | 50  | 30  | 10  |  | 50  | 30  | 10  |  | 50  | 30  | 10  |
| RCR |     |     |     |     |     |     |     |     |  |     |     |     |  |     |     |     |  |     |     |     |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 |  | 110 | 110 | 110 |  | 105 | 105 | 105 |  | 100 | 100 | 100 |
| 1   | 108 | 103 | 99  | 95  | 105 | 101 | 97  | 93  |  | 96  | 93  | 90  |  | 92  | 89  | 87  |  | 88  | 86  | 84  |
| 2   | 98  | 90  | 83  | 77  | 96  | 88  | 82  | 76  |  | 84  | 79  | 74  |  | 81  | 76  | 72  |  | 77  | 74  | 70  |
| 3   | 90  | 79  | 71  | 65  | 87  | 77  | 70  | 64  |  | 74  | 68  | 62  |  | 71  | 66  | 61  |  | 68  | 64  | 60  |
| 4   | 82  | 70  | 62  | 55  | 80  | 69  | 61  | 54  |  | 66  | 59  | 53  |  | 64  | 57  | 52  |  | 61  | 56  | 52  |
| 5   | 76  | 63  | 54  | 47  | 74  | 62  | 53  | 47  |  | 59  | 52  | 46  |  | 57  | 51  | 46  |  | 55  | 50  | 45  |
| 6   | 70  | 57  | 48  | 42  | 68  | 56  | 47  | 41  |  | 54  | 46  | 41  |  | 52  | 45  | 40  |  | 50  | 44  | 40  |
| 7   | 65  | 52  | 43  | 37  | 63  | 51  | 42  | 37  |  | 49  | 42  | 36  |  | 47  | 41  | 36  |  | 46  | 40  | 35  |
| 8   | 61  | 47  | 39  | 33  | 59  | 46  | 38  | 33  |  | 45  | 38  | 32  |  | 43  | 37  | 32  |  | 42  | 36  | 32  |
| 9   | 57  | 43  | 35  | 30  | 55  | 43  | 35  | 30  |  | 41  | 34  | 29  |  | 40  | 34  | 29  |  | 39  | 33  | 29  |
| 10  | 53  | 40  | 32  | 27  | 52  | 39  | 32  | 27  |  | 38  | 31  | 27  |  | 37  | 31  | 26  |  | 36  | 30  | 26  |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 7699 | 7699 | 7699 |
| 5°  | 7636 | 7604 | 7639 |
| 10° | 7542 | 7483 | 7545 |
| 15° | 7402 | 7328 | 7410 |
| 20° | 7234 | 7137 | 7242 |
| 25° | 7039 | 6920 | 7039 |
| 30° | 6795 | 6676 | 6812 |
| 35° | 6550 | 6412 | 6556 |
| 40° | 6287 | 6128 | 6304 |
| 45° | 6014 | 5825 | 6003 |
| 50° | 5712 | 5517 | 5682 |
| 55° | 5456 | 5187 | 5351 |
| 60° | 5164 | 4830 | 4968 |
| 65° | 4812 | 4467 | 4580 |
| 70° | 4461 | 4035 | 4155 |
| 75° | 4009 | 3569 | 3738 |
| 80° | 3397 | 3109 | 3449 |
| 85° | 2827 | 2752 | 3264 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 6014 cd/sqm

TEST NUMBER: P1215066  
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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 270.1  | 3.5       |
| 10°-20°   | 764.6  | 9.9       |
| 20°-30°   | 1131.0 | 14.7      |
| 30°-40°   | 1317.8 | 17.1      |
| 40°-50°   | 1315.8 | 17.1      |
| 50°-60°   | 1148.7 | 14.9      |
| 60°-70°   | 861.0  | 11.2      |
| 70°-80°   | 518.7  | 6.7       |
| 80°-90°   | 224.0  | 2.9       |
| 90°-100°  | 73.9   | 1.0       |
| 100°-110° | 34.1   | 0.4       |
| 110°-120° | 21.1   | 0.3       |
| 120°-130° | 11.5   | 0.1       |
| 130°-140° | 5.6    | 0.1       |
| 140°-150° | 2.0    | 0.0       |
| 150°-160° | 0.6    | 0.0       |
| 160°-170° | 0.0    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-30°    | 2165.6 | 28.1      |
| 0°-40°    | 3483.5 | 45.2      |
| 0°-60°    | 5948.0 | 77.2      |
| 0°-90°    | 7551.7 | 98.1      |
| 90°-120°  | 129.0  | 1.7       |
| 90°-150°  | 148.2  | 1.9       |
| 90°-180°  | 149.0  | 1.9       |
| 0°-180°   | 7700.5 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 2861 | 2861  | 2861 | 2861  | 2861 |      |
| 5°   | 2847 | 2845  | 2843 | 2847  | 2848 | 270  |
| 15°  | 2714 | 2713  | 2710 | 2714  | 2717 | 765  |
| 25°  | 2459 | 2454  | 2453 | 2460  | 2459 | 1131 |
| 35°  | 2106 | 2105  | 2107 | 2110  | 2108 | 1317 |
| 45°  | 1707 | 1706  | 1704 | 1708  | 1704 | 1316 |
| 55°  | 1296 | 1291  | 1284 | 1280  | 1271 | 1158 |
| 65°  | 885  | 878   | 872  | 856   | 843  | 878  |
| 75°  | 501  | 497   | 488  | 481   | 467  | 529  |
| 85°  | 175  | 185   | 204  | 209   | 202  | 174  |
| 90°  | 93   | 105   | 116  | 118   | 111  | 54   |
| 95°  | 79   | 71    | 63   | 55    | 48   | 63   |
| 105° | 60   | 52    | 33   | 11    | 1    | 64   |
| 115° | 42   | 36    | 22   | 5     | 0    | 42   |
| 125° | 27   | 23    | 13   | 1     | 0    | 24   |
| 135° | 16   | 13    | 6    | 1     | 1    | 12   |
| 145° | 7    | 6     | 2    | 1     | 1    | 4    |
| 155° | 2    | 1     | 1    | 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°     | 2861.1 | 2861.1 | 2861.1 | 2861.1 | 2861.1 |
| 2.5°   | 2859.2 | 2857.3 | 2855.3 | 2857.3 | 2860.2 |
| 5°     | 2846.6 | 2844.7 | 2842.7 | 2846.6 | 2847.6 |
| 7.5°   | 2827.2 | 2825.3 | 2822.4 | 2825.3 | 2828.2 |
| 10°    | 2799.1 | 2796.2 | 2793.3 | 2796.2 | 2800.1 |
| 12.5°  | 2762.3 | 2761.4 | 2757.5 | 2759.4 | 2762.3 |
| 15°    | 2713.9 | 2712.9 | 2710.0 | 2713.9 | 2716.8 |
| 17.5°  | 2662.6 | 2657.7 | 2656.8 | 2659.7 | 2662.6 |
| 20°    | 2599.6 | 2597.7 | 2594.8 | 2599.6 | 2602.5 |
| 22.5°  | 2531.8 | 2531.8 | 2528.9 | 2531.8 | 2534.7 |
| 25°    | 2459.2 | 2454.3 | 2453.4 | 2460.2 | 2459.2 |
| 27.5°  | 2375.9 | 2377.8 | 2374.9 | 2376.9 | 2384.6 |
| 30°    | 2287.7 | 2288.7 | 2288.7 | 2292.6 | 2293.6 |
| 32.5°  | 2199.6 | 2200.6 | 2201.5 | 2202.5 | 2203.5 |
| 35°    | 2105.7 | 2104.7 | 2106.6 | 2110.5 | 2107.6 |
| 37.5°  | 2011.7 | 2008.8 | 2009.8 | 2010.7 | 2018.5 |
| 40°    | 1910.0 | 1909.0 | 1910.0 | 1915.8 | 1914.9 |
| 42.5°  | 1806.4 | 1806.4 | 1811.2 | 1813.2 | 1810.2 |
| 45°    | 1706.6 | 1705.6 | 1703.7 | 1708.5 | 1703.7 |
| 47.5°  | 1603.0 | 1600.1 | 1599.1 | 1603.0 | 1598.1 |
| 50°    | 1494.5 | 1497.4 | 1495.5 | 1492.6 | 1486.7 |
| 52.5°  | 1397.6 | 1394.7 | 1390.9 | 1387.0 | 1378.3 |
| 55°    | 1295.9 | 1291.1 | 1284.3 | 1279.5 | 1270.8 |
| 57.5°  | 1192.3 | 1186.5 | 1179.7 | 1171.0 | 1167.1 |
| 60°    | 1092.5 | 1082.9 | 1073.2 | 1066.4 | 1050.9 |
| 62.5°  | 985.0  | 983.1  | 970.5  | 962.8  | 954.0  |
| 65°    | 885.3  | 878.5  | 871.7  | 856.2  | 842.7  |
| 67.5°  | 786.5  | 783.6  | 769.0  | 757.4  | 744.8  |
| 70°    | 691.6  | 681.9  | 672.2  | 660.6  | 644.1  |
| 72.5°  | 595.7  | 589.9  | 578.2  | 565.6  | 553.0  |
| 75°    | 500.7  | 496.9  | 488.2  | 481.4  | 466.8  |
| 77.5°  | 404.9  | 404.9  | 405.8  | 402.9  | 393.2  |
| 80°    | 318.7  | 324.5  | 329.3  | 331.2  | 323.5  |
| 82.5°  | 242.1  | 248.0  | 264.4  | 269.3  | 259.6  |
| 85°    | 175.3  | 185.0  | 204.4  | 209.2  | 202.4  |
| 87.5°  | 124.9  | 139.5  | 155.0  | 160.8  | 154.0  |
| 90°    | 93.0   | 104.6  | 116.2  | 118.2  | 111.4  |
| 92.5°  | 85.2   | 82.3   | 85.2   | 83.3   | 76.5   |
| 95°    | 79.4   | 70.7   | 63.0   | 55.2   | 47.5   |
| 97.5°  | 74.6   | 65.9   | 47.5   | 33.9   | 27.1   |
| 100°   | 69.7   | 61.0   | 39.7   | 19.4   | 10.7   |
| 102.5° | 64.9   | 57.1   | 36.8   | 12.6   | 1.9    |
| 105°   | 60.1   | 52.3   | 32.9   | 10.7   | 1.0    |
| 107.5° | 55.2   | 48.4   | 30.0   | 8.7    | 1.0    |
| 110°   | 50.4   | 44.6   | 27.1   | 7.7    | 1.0    |

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CATALOG NUMBER: 22-ID2-80-CNV-L835-U

**CANDELA DISTRIBUTION (continued):**

|        | 0°   | 22.5° | 45°  | 67.5° | 90° |
|--------|------|-------|------|-------|-----|
| 112.5° | 46.5 | 40.7  | 24.2 | 5.8   | 0.0 |
| 115°   | 41.6 | 35.8  | 22.3 | 4.8   | 0.0 |
| 117.5° | 37.8 | 32.9  | 19.4 | 3.9   | 0.0 |
| 120°   | 33.9 | 29.1  | 17.4 | 2.9   | 0.0 |
| 122.5° | 30.0 | 26.2  | 14.5 | 1.9   | 0.0 |
| 125°   | 27.1 | 23.2  | 12.6 | 1.0   | 0.0 |
| 127.5° | 23.2 | 20.3  | 10.7 | 1.0   | 0.0 |
| 130°   | 20.3 | 17.4  | 9.7  | 1.0   | 1.0 |
| 132.5° | 18.4 | 15.5  | 7.7  | 1.0   | 1.0 |
| 135°   | 15.5 | 12.6  | 5.8  | 1.0   | 1.0 |
| 137.5° | 13.6 | 10.7  | 4.8  | 1.0   | 1.0 |
| 140°   | 10.7 | 8.7   | 3.9  | 1.0   | 1.0 |
| 142.5° | 8.7  | 6.8   | 2.9  | 1.0   | 1.0 |
| 145°   | 6.8  | 5.8   | 1.9  | 1.0   | 1.0 |
| 147.5° | 4.8  | 3.9   | 1.0  | 1.0   | 1.0 |
| 150°   | 3.9  | 2.9   | 1.0  | 1.0   | 1.0 |
| 152.5° | 2.9  | 1.9   | 1.0  | 1.0   | 1.0 |
| 155°   | 1.9  | 1.0   | 1.0  | 1.0   | 1.0 |
| 157.5° | 1.0  | 1.0   | 1.0  | 1.0   | 1.0 |
| 160°   | 1.0  | 1.0   | 1.0  | 1.0   | 1.0 |
| 162.5° | 0.0  | 0.0   | 0.0  | 0.0   | 0.0 |
| 165°   | 0.0  | 0.0   | 0.0  | 0.0   | 0.0 |
| 167.5° | 0.0  | 0.0   | 0.0  | 0.0   | 0.0 |
| 170°   | 0.0  | 0.0   | 0.0  | 0.0   | 0.0 |
| 172.5° | 0.0  | 0.0   | 0.0  | 0.0   | 0.0 |
| 175°   | 0.0  | 0.0   | 0.0  | 0.0   | 0.0 |
| 177.5° | 0.0  | 0.0   | 0.0  | 0.0   | 0.0 |
| 180°   | 0.0  | 0.0   | 0.0  | 0.0   | 0.0 |

TEST NUMBER: P1215066

CATALOG NUMBER: 22-ID2-80-CNV-L835-U

**CIE UGR TABLE:**

| Reflectances:   |      |                  |       |       |       |       |                |       |       |       |       |
|-----------------|------|------------------|-------|-------|-------|-------|----------------|-------|-------|-------|-------|
| Ceiling         |      | 0.7              | 0.7   | 0.5   | 0.5   | 0.3   | 0.7            | 0.7   | 0.5   | 0.5   | 0.3   |
| Wall            |      | 0.5              | 0.3   | 0.5   | 0.3   | 0.3   | 0.5            | 0.3   | 0.5   | 0.3   | 0.3   |
| Reference plane |      | 0.2              | 0.2   | 0.2   | 0.2   | 0.2   | 0.2            | 0.2   | 0.2   | 0.2   | 0.2   |
| Room dimensions |      | Viewed crosswise |       |       |       |       | Viewed endwise |       |       |       |       |
| X=2H            | Y=2H | 17.55            | 19.14 | 17.95 | 19.49 | 19.85 | 17.45          | 19.03 | 17.85 | 19.39 | 19.75 |
|                 | 3H   | 19.29            | 20.72 | 19.70 | 21.09 | 21.50 | 19.09          | 20.53 | 19.50 | 20.89 | 21.30 |
|                 | 4H   | 19.95            | 21.30 | 20.38 | 21.68 | 22.11 | 19.71          | 21.06 | 20.14 | 21.45 | 21.87 |
|                 | 6H   | 20.43            | 21.68 | 20.87 | 22.09 | 22.53 | 20.22          | 21.47 | 20.67 | 21.88 | 22.32 |
|                 | 8H   | 20.60            | 21.79 | 21.05 | 22.22 | 22.67 | 20.42          | 21.62 | 20.88 | 22.05 | 22.49 |
|                 | 12H  | 20.72            | 21.87 | 21.18 | 22.29 | 22.77 | 20.60          | 21.74 | 21.06 | 22.16 | 22.64 |
| 4H              | 2H   | 18.12            | 19.47 | 18.55 | 19.85 | 20.28 | 18.03          | 19.38 | 18.46 | 19.77 | 20.19 |
|                 | 3H   | 20.06            | 21.20 | 20.50 | 21.63 | 22.08 | 19.89          | 21.03 | 20.33 | 21.46 | 21.91 |
|                 | 4H   | 20.85            | 21.87 | 21.31 | 22.33 | 22.81 | 20.64          | 21.67 | 21.11 | 22.12 | 22.61 |
|                 | 6H   | 21.46            | 22.36 | 21.94 | 22.84 | 23.34 | 21.29          | 22.19 | 21.77 | 22.67 | 23.17 |
|                 | 8H   | 21.68            | 22.52 | 22.17 | 23.00 | 23.51 | 21.55          | 22.40 | 22.04 | 22.88 | 23.39 |
|                 | 12H  | 21.86            | 22.62 | 22.37 | 23.13 | 23.64 | 21.79          | 22.55 | 22.30 | 23.06 | 23.57 |
| 8H              | 4H   | 21.12            | 21.97 | 21.61 | 22.44 | 22.95 | 20.94          | 21.79 | 21.43 | 22.27 | 22.78 |
|                 | 6H   | 21.86            | 22.57 | 22.38 | 23.09 | 23.61 | 21.72          | 22.43 | 22.25 | 22.95 | 23.47 |
|                 | 8H   | 22.16            | 22.79 | 22.69 | 23.33 | 23.86 | 22.08          | 22.71 | 22.62 | 23.25 | 23.78 |
|                 | 12H  | 22.42            | 22.99 | 22.96 | 23.51 | 24.11 | 22.42          | 22.99 | 22.96 | 23.51 | 24.11 |
| 12H             | 4H   | 21.15            | 21.91 | 21.66 | 22.42 | 22.94 | 20.98          | 21.74 | 21.49 | 22.25 | 22.76 |
|                 | 6H   | 21.92            | 22.56 | 22.46 | 23.10 | 23.63 | 21.79          | 22.43 | 22.33 | 22.96 | 23.49 |
|                 | 8H   | 22.28            | 22.84 | 22.82 | 23.37 | 23.97 | 22.21          | 22.77 | 22.74 | 23.30 | 23.90 |

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

Report Prepared for

Cooper Lighting Solutions

Corelite

Report Number: SP1-2506-458-1

Test Date: 07/23/2025

Luminaire Tested: 22ID2-55-CFR1-L835-U

Data in this report applies to families of products including 22ID2-55-CFR1-L835-U

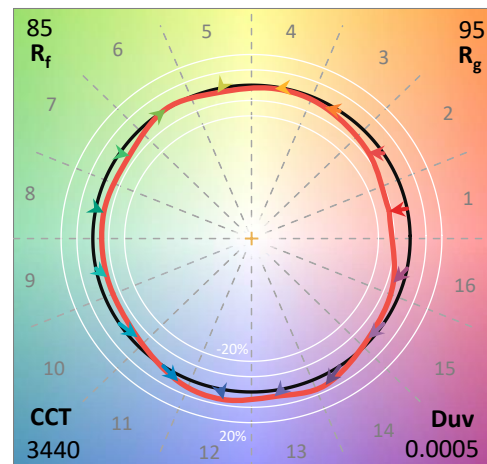
### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2506-458-1  
 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-L835-U**  
 Description: 2X2 CGTX WITH INDEPTH FRAME AND CFR1 LENS - 5500 LUMEN 3500K 80CRI

### Spectral Parameters

CCT (K): 3440  
 CIE  $u'$ : 0.2370  
 CIE  $v'$ : 0.5132  
 Duv: 0.0005  
 CIE x: 0.4093  
 CIE y: 0.3940  
 CIE z: 0.1967  
 Peak Wavelength (nm): 599  
 Dominant Wavelength (nm): 580  
 Purity: 41.09375  
 R<sub>f</sub>: 84.9  
 R<sub>g</sub>: 94.6

CRI (Ra): 84.2  
 R1: 82.8  
 R2: 91.7  
 R3: 96.7  
 R4: 81.9  
 R5: 82.6  
 R6: 88.8  
 R7: 85.0  
 R8: 63.7  
 R9: 13.6  
 R10: 80.1  
 R11: 81.1  
 R12: 65.8  
 R13: 85.2  
 R14: 98.7  
 R15: 76.2



### Test Conditions

Stabilization Time: 36M  
 Operation Time: 1H 36M  
 Sphere Temperature (°C): 24.0

REPORT NUMBER: SP1-2506-458-1

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

REPORT NUMBER: SP1-2506-458-1

**CIE 1931 Chromaticity Diagram**



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



Point lies inside the ANSI 3500K 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               | 295                                    | NR                             | 620               | 910                                    | NR                             | 750               | 30                                     | NR                             | 880               | 1                                      | NR                             |
| 365               | 0                                      | NR                             | 495               | 335                                    | NR                             | 625               | 862                                    | NR                             | 755               | 25                                     | NR                             | 885               | 1                                      | NR                             |
| 370               | 0                                      | NR                             | 500               | 390                                    | NR                             | 630               | 809                                    | NR                             | 760               | 21                                     | NR                             | 890               | 1                                      | NR                             |
| 375               | 0                                      | NR                             | 505               | 445                                    | NR                             | 635               | 752                                    | NR                             | 765               | 18                                     | NR                             | 895               | 0                                      | NR                             |
| 380               | 0                                      | NR                             | 510               | 490                                    | NR                             | 640               | 694                                    | NR                             | 770               | 16                                     | NR                             | 900               | 0                                      | NR                             |
| 385               | 0                                      | NR                             | 515               | 532                                    | NR                             | 645               | 630                                    | NR                             | 775               | 13                                     | NR                             | 905               | 0                                      | NR                             |
| 390               | 0                                      | NR                             | 520               | 563                                    | NR                             | 650               | 571                                    | NR                             | 780               | 12                                     | NR                             | 910               | 0                                      | NR                             |
| 395               | 2                                      | NR                             | 525               | 588                                    | NR                             | 655               | 512                                    | NR                             | 785               | 10                                     | NR                             | 915               | 0                                      | NR                             |
| 400               | 3                                      | NR                             | 530               | 609                                    | NR                             | 660               | 453                                    | NR                             | 790               | 8                                      | NR                             | 920               | 0                                      | NR                             |
| 405               | 5                                      | NR                             | 535               | 631                                    | NR                             | 665               | 401                                    | NR                             | 795               | 7                                      | NR                             | 925               | 0                                      | NR                             |
| 410               | 8                                      | NR                             | 540               | 654                                    | NR                             | 670               | 351                                    | NR                             | 800               | 6                                      | NR                             | 930               | 0                                      | NR                             |
| 415               | 13                                     | NR                             | 545               | 677                                    | NR                             | 675               | 306                                    | NR                             | 805               | 5                                      | NR                             | 935               | 0                                      | NR                             |
| 420               | 23                                     | NR                             | 550               | 702                                    | NR                             | 680               | 267                                    | NR                             | 810               | 5                                      | NR                             | 940               | 0                                      | NR                             |
| 425               | 40                                     | NR                             | 555               | 734                                    | NR                             | 685               | 230                                    | NR                             | 815               | 4                                      | NR                             | 945               | 0                                      | NR                             |
| 430               | 70                                     | NR                             | 560               | 767                                    | NR                             | 690               | 199                                    | NR                             | 820               | 4                                      | NR                             | 950               | 0                                      | NR                             |
| 435               | 126                                    | NR                             | 565               | 802                                    | NR                             | 695               | 171                                    | NR                             | 825               | 3                                      | NR                             | 955               | 0                                      | NR                             |
| 440               | 221                                    | NR                             | 570               | 838                                    | NR                             | 700               | 146                                    | NR                             | 830               | 3                                      | NR                             | 960               | 0                                      | NR                             |
| 445               | 418                                    | NR                             | 575               | 875                                    | NR                             | 705               | 125                                    | NR                             | 835               | 2                                      | NR                             | 965               | 0                                      | NR                             |
| 450               | 729                                    | NR                             | 580               | 913                                    | NR                             | 710               | 107                                    | NR                             | 840               | 2                                      | NR                             | 970               | 0                                      | NR                             |
| 455               | 816                                    | NR                             | 585               | 946                                    | NR                             | 715               | 90                                     | NR                             | 845               | 2                                      | NR                             | 975               | 0                                      | NR                             |
| 460               | 578                                    | NR                             | 590               | 976                                    | NR                             | 720               | 77                                     | NR                             | 850               | 1                                      | NR                             | 980               | 0                                      | NR                             |
| 465               | 458                                    | NR                             | 595               | 992                                    | NR                             | 725               | 66                                     | NR                             | 855               | 1                                      | NR                             | 985               | 0                                      | NR                             |
| 470               | 390                                    | NR                             | 600               | 999                                    | NR                             | 730               | 56                                     | NR                             | 860               | 1                                      | NR                             | 990               | 0                                      | NR                             |
| 475               | 299                                    | NR                             | 605               | 995                                    | NR                             | 735               | 47                                     | NR                             | 865               | 1                                      | NR                             | 995               | 0                                      | NR                             |
| 480               | 260                                    | NR                             | 610               | 975                                    | NR                             | 740               | 40                                     | NR                             | 870               | 1                                      | NR                             | 1000              | 0                                      | NR                             |
| 485               | 271                                    | NR                             | 615               | 948                                    | NR                             | 745               | 34                                     | NR                             | 875               | 1                                      | NR                             |                   |                                        |                                |

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**Scotopic Flux vs. Wavelength**

**Scotopic Lumens: NR**
**S/P: 1.53**

| 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       | 295                         | NR               | 620       | 910                         | NR               | 750       | 30                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 335                         | NR               | 625       | 862                         | NR               | 755       | 25                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 390                         | NR               | 630       | 809                         | NR               | 760       | 21                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 445                         | NR               | 635       | 752                         | NR               | 765       | 18                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 490                         | NR               | 640       | 694                         | NR               | 770       | 16                          | NR               | 900       | 0                           | NR               |
| 385       | 0                           | NR               | 515       | 532                         | NR               | 645       | 630                         | NR               | 775       | 13                          | NR               | 905       | 0                           | NR               |
| 390       | 0                           | NR               | 520       | 563                         | NR               | 650       | 571                         | NR               | 780       | 12                          | NR               | 910       | 0                           | NR               |
| 395       | 2                           | NR               | 525       | 588                         | NR               | 655       | 512                         | NR               | 785       | 10                          | NR               | 915       | 0                           | NR               |
| 400       | 3                           | NR               | 530       | 609                         | NR               | 660       | 453                         | NR               | 790       | 8                           | NR               | 920       | 0                           | NR               |
| 405       | 5                           | NR               | 535       | 631                         | NR               | 665       | 401                         | NR               | 795       | 7                           | NR               | 925       | 0                           | NR               |
| 410       | 8                           | NR               | 540       | 654                         | NR               | 670       | 351                         | NR               | 800       | 6                           | NR               | 930       | 0                           | NR               |
| 415       | 13                          | NR               | 545       | 677                         | NR               | 675       | 306                         | NR               | 805       | 5                           | NR               | 935       | 0                           | NR               |
| 420       | 23                          | NR               | 550       | 702                         | NR               | 680       | 267                         | NR               | 810       | 5                           | NR               | 940       | 0                           | NR               |
| 425       | 40                          | NR               | 555       | 734                         | NR               | 685       | 230                         | NR               | 815       | 4                           | NR               | 945       | 0                           | NR               |
| 430       | 70                          | NR               | 560       | 767                         | NR               | 690       | 199                         | NR               | 820       | 4                           | NR               | 950       | 0                           | NR               |
| 435       | 126                         | NR               | 565       | 802                         | NR               | 695       | 171                         | NR               | 825       | 3                           | NR               | 955       | 0                           | NR               |
| 440       | 221                         | NR               | 570       | 838                         | NR               | 700       | 146                         | NR               | 830       | 3                           | NR               | 960       | 0                           | NR               |
| 445       | 418                         | NR               | 575       | 875                         | NR               | 705       | 125                         | NR               | 835       | 2                           | NR               | 965       | 0                           | NR               |
| 450       | 729                         | NR               | 580       | 913                         | NR               | 710       | 107                         | NR               | 840       | 2                           | NR               | 970       | 0                           | NR               |
| 455       | 816                         | NR               | 585       | 946                         | NR               | 715       | 90                          | NR               | 845       | 2                           | NR               | 975       | 0                           | NR               |
| 460       | 578                         | NR               | 590       | 976                         | NR               | 720       | 77                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 458                         | NR               | 595       | 992                         | NR               | 725       | 66                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 390                         | NR               | 600       | 999                         | NR               | 730       | 56                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 299                         | NR               | 605       | 995                         | NR               | 735       | 47                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 260                         | NR               | 610       | 975                         | NR               | 740       | 40                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 271                         | NR               | 615       | 948                         | NR               | 745       | 34                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.07

| $\lambda$<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               | 295                                    | NR                             | 620               | 910                                    | NR                             | 750               | 30                                     | NR                             | 880               | 1                                      | NR                             |
| 365               | 0                                      | NR                             | 495               | 335                                    | NR                             | 625               | 862                                    | NR                             | 755               | 25                                     | NR                             | 885               | 1                                      | NR                             |
| 370               | 0                                      | NR                             | 500               | 390                                    | NR                             | 630               | 809                                    | NR                             | 760               | 21                                     | NR                             | 890               | 1                                      | NR                             |
| 375               | 0                                      | NR                             | 505               | 445                                    | NR                             | 635               | 752                                    | NR                             | 765               | 18                                     | NR                             | 895               | 0                                      | NR                             |
| 380               | 0                                      | NR                             | 510               | 490                                    | NR                             | 640               | 694                                    | NR                             | 770               | 16                                     | NR                             | 900               | 0                                      | NR                             |
| 385               | 0                                      | NR                             | 515               | 532                                    | NR                             | 645               | 630                                    | NR                             | 775               | 13                                     | NR                             | 905               | 0                                      | NR                             |
| 390               | 0                                      | NR                             | 520               | 563                                    | NR                             | 650               | 571                                    | NR                             | 780               | 12                                     | NR                             | 910               | 0                                      | NR                             |
| 395               | 2                                      | NR                             | 525               | 588                                    | NR                             | 655               | 512                                    | NR                             | 785               | 10                                     | NR                             | 915               | 0                                      | NR                             |
| 400               | 3                                      | NR                             | 530               | 609                                    | NR                             | 660               | 453                                    | NR                             | 790               | 8                                      | NR                             | 920               | 0                                      | NR                             |
| 405               | 5                                      | NR                             | 535               | 631                                    | NR                             | 665               | 401                                    | NR                             | 795               | 7                                      | NR                             | 925               | 0                                      | NR                             |
| 410               | 8                                      | NR                             | 540               | 654                                    | NR                             | 670               | 351                                    | NR                             | 800               | 6                                      | NR                             | 930               | 0                                      | NR                             |
| 415               | 13                                     | NR                             | 545               | 677                                    | NR                             | 675               | 306                                    | NR                             | 805               | 5                                      | NR                             | 935               | 0                                      | NR                             |
| 420               | 23                                     | NR                             | 550               | 702                                    | NR                             | 680               | 267                                    | NR                             | 810               | 5                                      | NR                             | 940               | 0                                      | NR                             |
| 425               | 40                                     | NR                             | 555               | 734                                    | NR                             | 685               | 230                                    | NR                             | 815               | 4                                      | NR                             | 945               | 0                                      | NR                             |
| 430               | 70                                     | NR                             | 560               | 767                                    | NR                             | 690               | 199                                    | NR                             | 820               | 4                                      | NR                             | 950               | 0                                      | NR                             |
| 435               | 126                                    | NR                             | 565               | 802                                    | NR                             | 695               | 171                                    | NR                             | 825               | 3                                      | NR                             | 955               | 0                                      | NR                             |
| 440               | 221                                    | NR                             | 570               | 838                                    | NR                             | 700               | 146                                    | NR                             | 830               | 3                                      | NR                             | 960               | 0                                      | NR                             |
| 445               | 418                                    | NR                             | 575               | 875                                    | NR                             | 705               | 125                                    | NR                             | 835               | 2                                      | NR                             | 965               | 0                                      | NR                             |
| 450               | 729                                    | NR                             | 580               | 913                                    | NR                             | 710               | 107                                    | NR                             | 840               | 2                                      | NR                             | 970               | 0                                      | NR                             |
| 455               | 816                                    | NR                             | 585               | 946                                    | NR                             | 715               | 90                                     | NR                             | 845               | 2                                      | NR                             | 975               | 0                                      | NR                             |
| 460               | 578                                    | NR                             | 590               | 976                                    | NR                             | 720               | 77                                     | NR                             | 850               | 1                                      | NR                             | 980               | 0                                      | NR                             |
| 465               | 458                                    | NR                             | 595               | 992                                    | NR                             | 725               | 66                                     | NR                             | 855               | 1                                      | NR                             | 985               | 0                                      | NR                             |
| 470               | 390                                    | NR                             | 600               | 999                                    | NR                             | 730               | 56                                     | NR                             | 860               | 1                                      | NR                             | 990               | 0                                      | NR                             |
| 475               | 299                                    | NR                             | 605               | 995                                    | NR                             | 735               | 47                                     | NR                             | 865               | 1                                      | NR                             | 995               | 0                                      | NR                             |
| 480               | 260                                    | NR                             | 610               | 975                                    | NR                             | 740               | 40                                     | NR                             | 870               | 1                                      | NR                             | 1000              | 0                                      | NR                             |
| 485               | 271                                    | NR                             | 615               | 948                                    | NR                             | 745               | 34                                     | NR                             | 875               | 1                                      | NR                             |                   |                                        |                                |

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TM-30-18

### Summary

$R_f = 84.9$   
 $R_g = 94.6$   
 $\text{CIE } R_a = 84.2$   
 $R_9 = 13.6$



### Color Vector Graphics



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 87 | CES51 = 92 | CES76 = 81 |
| CES02 = 62 | CES27 = 91 | CES52 = 93 | CES77 = 85 |
| CES03 = 31 | CES28 = 94 | CES53 = 90 | CES78 = 80 |
| CES04 = 70 | CES29 = 92 | CES54 = 89 | CES79 = 92 |
| CES05 = 49 | CES30 = 89 | CES55 = 86 | CES80 = 90 |
| CES06 = 51 | CES31 = 94 | CES56 = 85 | CES81 = 77 |
| CES07 = 41 | CES32 = 86 | CES57 = 83 | CES82 = 96 |
| CES08 = 40 | CES33 = 97 | CES58 = 84 | CES83 = 96 |
| CES09 = 29 | CES34 = 91 | CES59 = 91 | CES84 = 91 |
| CES10 = 75 | CES35 = 95 | CES60 = 89 | CES85 = 76 |
| CES11 = 58 | CES36 = 79 | CES61 = 87 | CES86 = 73 |
| CES12 = 64 | CES37 = 95 | CES62 = 81 | CES87 = 85 |
| CES13 = 43 | CES38 = 84 | CES63 = 85 | CES88 = 89 |
| CES14 = 74 | CES39 = 98 | CES64 = 78 | CES89 = 78 |
| CES15 = 71 | CES40 = 97 | CES65 = 78 | CES90 = 90 |
| CES16 = 47 | CES41 = 95 | CES66 = 75 | CES91 = 71 |
| CES17 = 50 | CES42 = 96 | CES67 = 74 | CES92 = 65 |
| CES18 = 56 | CES43 = 92 | CES68 = 79 | CES93 = 79 |
| CES19 = 72 | CES44 = 99 | CES69 = 83 | CES94 = 64 |
| CES20 = 66 | CES45 = 95 | CES70 = 77 | CES95 = 74 |
| CES21 = 86 | CES46 = 91 | CES71 = 71 | CES96 = 85 |
| CES22 = 78 | CES47 = 94 | CES72 = 90 | CES97 = 90 |
| CES23 = 92 | CES48 = 83 | CES73 = 72 | CES98 = 86 |
| CES24 = 90 | CES49 = 92 | CES74 = 90 | CES99 = 79 |
| CES25 = 72 | CES50 = 93 | CES75 = 75 |            |



### Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)