

Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



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: IRiS

Report Number: P1254910

Luminaire Tested: P3A13R709035DE010 E3LSWW1H

Issue Date: 1/29/2026

**Test Information**

Test Method: LM-79-2019  
Report Number: P1254910  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2509-551-15)  
Test Lab: INNOVATION CENTER  
Issue Date: 1/29/2026  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: IRiS  
Catalog Number: P3A13R709035DE010 E3LSWW1H  
Description: 3in Adjustable LED luminaire with, R70 optic, 3500K CCT AND, 90CRI , E3LSWW1H TRIM  
Light Source: -  
Ballast/Driver: -

**Summary**

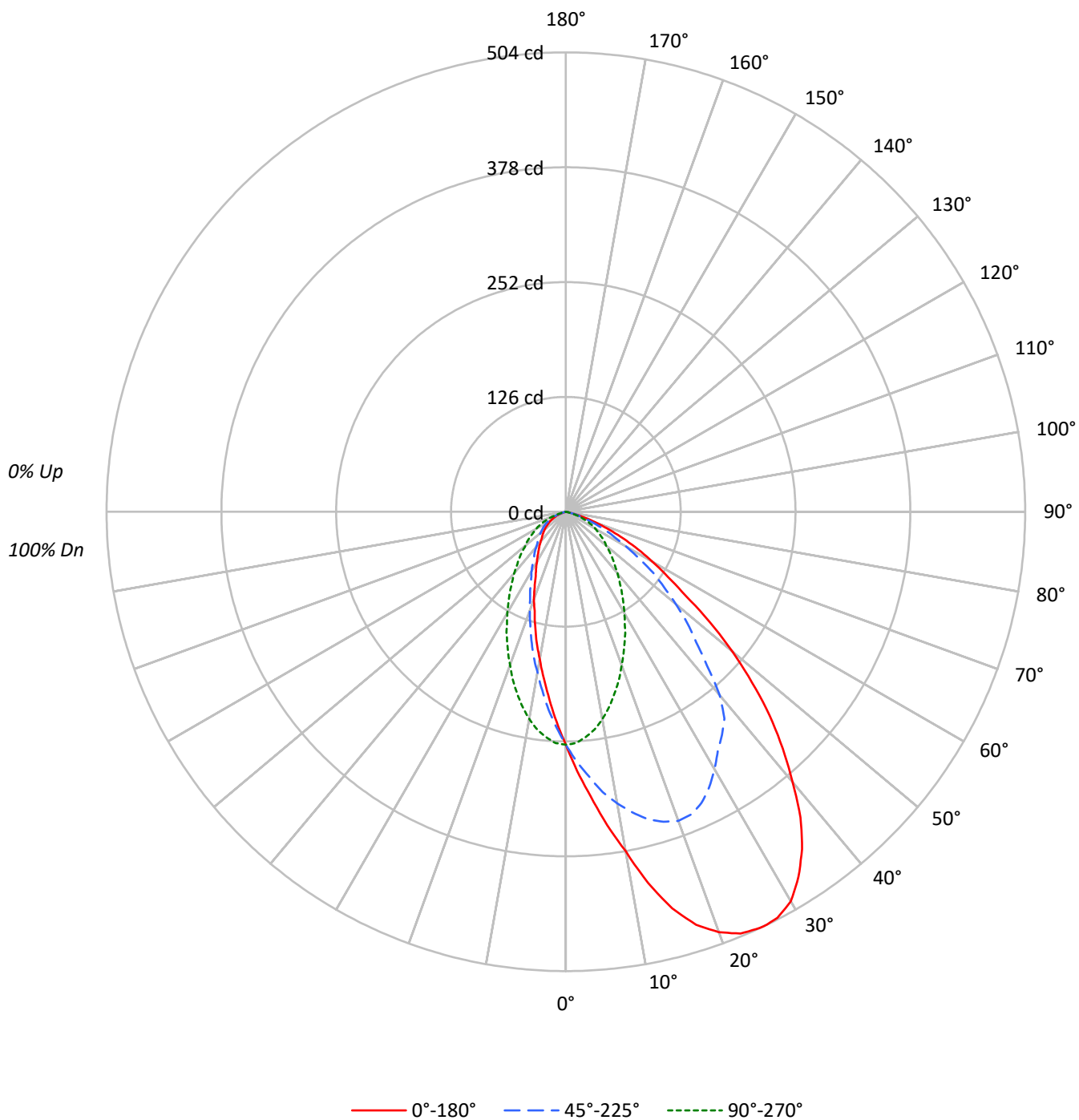
Lumens per Lamp: N/A  
Luminaire Lumens: 509.0 lumens  
Efficiency: N/A  
Efficacy: 34.9 lumens/watt  
Spacing Criteria (0/90/45): 1.47 / 0.85 / 1.23  
Luminous Opening: Circular (Dia: 0.25' x H: 0')  
CIE Type: Direct

Input Watts (W): 14.6  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

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CATALOG NUMBER: P3A13R709035DE010 E3LSWW1H

### Luminous Intensity Polar Plot



TEST NUMBER: P1254910

CATALOG NUMBER: P3A13R709035DE010 E3LSWW1H

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

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| RF  | 20  |     |     |     | 20  |     |     |     |     | 20  |     |     |     |     | 20  |     |     |     |     | 20  |
| RC  | 80  |     |     |     | 70  |     |     |     |     | 50  |     |     |     |     | 30  |     |     |     |     | 10  |
| RW  | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  |
| RCR |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 102 | 102 | 100 |
| 1   | 111 | 108 | 104 | 101 | 109 | 105 | 102 | 100 | 101 | 99  | 96  | 97  | 95  | 94  | 94  | 92  | 91  | 91  | 91  | 89  |
| 2   | 103 | 96  | 91  | 86  | 101 | 95  | 89  | 85  | 91  | 87  | 83  | 88  | 85  | 81  | 85  | 82  | 80  | 80  | 80  | 78  |
| 3   | 95  | 87  | 80  | 74  | 93  | 85  | 79  | 74  | 82  | 77  | 72  | 80  | 75  | 71  | 77  | 73  | 70  | 70  | 70  | 68  |
| 4   | 88  | 78  | 70  | 65  | 86  | 77  | 70  | 64  | 74  | 68  | 63  | 72  | 67  | 63  | 70  | 66  | 62  | 62  | 62  | 60  |
| 5   | 82  | 71  | 63  | 57  | 80  | 70  | 62  | 57  | 68  | 61  | 56  | 66  | 60  | 56  | 64  | 59  | 55  | 55  | 55  | 53  |
| 6   | 76  | 64  | 56  | 51  | 74  | 63  | 56  | 51  | 62  | 55  | 50  | 60  | 54  | 50  | 59  | 53  | 49  | 49  | 49  | 47  |
| 7   | 71  | 59  | 51  | 45  | 69  | 58  | 51  | 45  | 57  | 50  | 45  | 55  | 49  | 45  | 54  | 49  | 44  | 44  | 44  | 43  |
| 8   | 66  | 54  | 46  | 41  | 65  | 53  | 46  | 41  | 52  | 46  | 41  | 51  | 45  | 41  | 50  | 44  | 40  | 40  | 40  | 39  |
| 9   | 62  | 50  | 42  | 37  | 61  | 49  | 42  | 37  | 48  | 42  | 37  | 47  | 41  | 37  | 46  | 41  | 37  | 37  | 37  | 35  |
| 10  | 59  | 46  | 39  | 34  | 57  | 46  | 39  | 34  | 45  | 38  | 34  | 44  | 38  | 34  | 43  | 38  | 34  | 34  | 34  | 32  |

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

|     | 0°     | 45°   | 90°   | 135°  | 180°  |
|-----|--------|-------|-------|-------|-------|
| 0°  | 56026  | 56026 | 56026 | 56026 | 56026 |
| 5°  | 68963  | 64186 | 54655 | 47986 | 45432 |
| 10° | 84211  | 72321 | 51435 | 39857 | 36650 |
| 15° | 102248 | 79319 | 46856 | 33099 | 29489 |
| 20° | 114530 | 84217 | 41770 | 26952 | 23919 |
| 25° | 121894 | 85239 | 37018 | 22356 | 18872 |
| 30° | 125007 | 82620 | 32537 | 19016 | 16078 |
| 35° | 120970 | 79986 | 28590 | 16222 | 13920 |
| 40° | 110750 | 75198 | 25219 | 14456 | 12395 |
| 45° | 98057  | 62673 | 22390 | 13428 | 11195 |
| 50° | 81260  | 53695 | 19684 | 12315 | 10337 |
| 55° | 61245  | 44691 | 18198 | 11584 | 9366  |
| 60° | 48110  | 33550 | 16446 | 10745 | 8245  |
| 65° | 35957  | 24698 | 14217 | 8976  | 6745  |
| 70° | 23145  | 15708 | 10194 | 6475  | 3719  |
| 75° | 9743   | 8557  | 4914  | 2457  | 1186  |
| 80° | 1768   | 1768  | 0     | 0     | 0     |
| 85° | 0      | 0     | 0     | 0     | 0     |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 98057 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 24.2   | 4.8       |
| 10°-20°   | 69.8   | 13.7      |
| 20°-30°   | 102.0  | 20.0      |
| 30°-40°   | 111.1  | 21.8      |
| 40°-50°   | 96.2   | 18.9      |
| 50°-60°   | 64.4   | 12.7      |
| 60°-70°   | 33.3   | 6.5       |
| 70°-80°   | 7.9    | 1.5       |
| 80°-90°   | 0.1    | 0.0       |
| 90°-100°  | 0.0    | 0.0       |
| 100°-110° | 0.0    | 0.0       |
| 110°-120° | 0.0    | 0.0       |
| 120°-130° | 0.0    | 0.0       |
| 130°-140° | 0.0    | 0.0       |
| 140°-150° | 0.0    | 0.0       |
| 150°-160° | 0.0    | 0.0       |
| 160°-170° | 0.0    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-30°    | 196.0  | 38.5      |
| 0°-40°    | 307.2  | 60.3      |
| 0°-60°    | 467.8  | 91.9      |
| 0°-90°    | 509.0  | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 509.0  | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 45° | 90° | 135° | 180° | Flux |
|-----|-----|-----|-----|------|------|------|
| 0°  | 256 | 256 | 256 | 256  | 256  |      |
| 5°  | 313 | 292 | 248 | 218  | 206  | 32   |
| 15° | 450 | 349 | 206 | 146  | 130  | 128  |
| 25° | 504 | 352 | 153 | 92   | 78   | 231  |
| 35° | 452 | 299 | 107 | 61   | 52   | 280  |
| 45° | 316 | 202 | 72  | 43   | 36   | 242  |
| 55° | 160 | 117 | 48  | 30   | 24   | 148  |
| 65° | 69  | 48  | 27  | 17   | 13   | 70   |
| 75° | 12  | 10  | 6   | 3    | 1    | 15   |
| 85° | 0   | 0   | 0   | 0    | 0    | 0    |
| 90° | 0   | 0   | 0   | 0    | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 5°    | 15°   | 25°   | 35°   | 45°   | 55°   | 65°   | 75°   | 85°   | 90°   |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 255.5 | 255.5 | 255.5 | 255.5 | 255.5 | 255.5 | 255.5 | 255.5 | 255.5 | 255.5 | 255.5 |
| 2.5°  | 284.4 | 283.0 | 283.0 | 280.1 | 277.2 | 274.3 | 270.0 | 265.6 | 261.3 | 257.0 | 254.1 |
| 5°    | 313.3 | 314.7 | 313.3 | 307.5 | 300.3 | 291.6 | 283.0 | 272.9 | 262.7 | 254.1 | 248.3 |
| 7.5°  | 346.5 | 346.5 | 342.1 | 334.9 | 324.8 | 310.4 | 295.9 | 278.6 | 262.7 | 248.3 | 241.1 |
| 10°   | 378.2 | 378.2 | 371.0 | 359.5 | 343.6 | 324.8 | 304.6 | 281.5 | 259.9 | 239.6 | 231.0 |
| 12.5° | 417.2 | 415.8 | 407.1 | 388.3 | 365.2 | 337.8 | 310.4 | 281.5 | 255.5 | 231.0 | 219.4 |
| 15°   | 450.4 | 449.0 | 437.4 | 414.3 | 384.0 | 349.4 | 311.8 | 278.6 | 246.9 | 219.4 | 206.4 |
| 17.5° | 475.0 | 472.1 | 459.1 | 434.5 | 399.9 | 356.6 | 313.3 | 272.9 | 236.8 | 206.4 | 193.5 |
| 20°   | 490.8 | 489.4 | 475.0 | 446.1 | 408.6 | 360.9 | 311.8 | 265.6 | 226.7 | 193.5 | 179.0 |
| 22.5° | 500.9 | 498.1 | 483.6 | 451.9 | 408.6 | 359.5 | 306.1 | 255.5 | 213.7 | 180.5 | 166.0 |
| 25°   | 503.8 | 502.4 | 485.1 | 450.4 | 404.2 | 352.3 | 297.4 | 245.4 | 200.7 | 167.5 | 153.0 |
| 26°   | 503.8 | 502.4 | 485.1 | 449.0 | 401.3 | 347.9 | 293.1 | 241.1 | 196.3 | 161.7 | 148.7 |
| 27.5° | 502.4 | 500.9 | 482.2 | 444.6 | 395.6 | 340.7 | 284.4 | 232.4 | 187.7 | 154.5 | 140.0 |
| 30°   | 493.7 | 490.8 | 472.1 | 434.5 | 382.6 | 326.3 | 270.0 | 219.4 | 174.7 | 141.5 | 128.5 |
| 32.5° | 475.0 | 472.1 | 451.9 | 417.2 | 368.1 | 310.4 | 254.1 | 205.0 | 161.7 | 128.5 | 116.9 |
| 35°   | 451.9 | 449.0 | 428.8 | 395.6 | 347.9 | 298.8 | 236.8 | 189.1 | 147.3 | 118.4 | 106.8 |
| 37.5° | 423.0 | 418.7 | 401.3 | 366.7 | 323.4 | 285.8 | 222.3 | 173.2 | 134.3 | 106.8 | 96.7  |
| 40°   | 386.9 | 385.5 | 369.6 | 337.8 | 294.5 | 262.7 | 213.7 | 173.2 | 122.7 | 96.7  | 88.1  |
| 42.5° | 352.3 | 349.4 | 334.9 | 307.5 | 268.5 | 229.5 | 187.7 | 166.0 | 114.0 | 86.6  | 79.4  |
| 45°   | 316.2 | 313.3 | 300.3 | 277.2 | 241.1 | 202.1 | 202.1 | 142.9 | 98.2  | 79.4  | 72.2  |
| 47.5° | 277.2 | 274.3 | 264.2 | 246.9 | 215.1 | 180.5 | 147.3 | 116.9 | 89.5  | 70.7  | 65.0  |
| 50°   | 238.2 | 239.6 | 231.0 | 213.7 | 189.1 | 157.4 | 127.0 | 98.2  | 76.5  | 63.5  | 57.7  |
| 52.5° | 199.2 | 197.8 | 192.0 | 180.5 | 163.1 | 135.7 | 108.3 | 83.7  | 66.4  | 56.3  | 53.4  |
| 55°   | 160.2 | 161.7 | 158.8 | 151.6 | 137.1 | 116.9 | 91.0  | 72.2  | 59.2  | 50.5  | 47.6  |
| 57.5° | 132.8 | 134.3 | 128.5 | 124.2 | 112.6 | 95.3  | 75.1  | 60.6  | 50.5  | 44.8  | 41.9  |
| 60°   | 109.7 | 111.2 | 106.8 | 101.1 | 92.4  | 76.5  | 60.6  | 50.5  | 44.8  | 40.4  | 37.5  |
| 62.5° | 89.5  | 88.1  | 85.2  | 79.4  | 72.2  | 60.6  | 49.1  | 41.9  | 37.5  | 34.6  | 33.2  |
| 65°   | 69.3  | 69.3  | 66.4  | 62.1  | 56.3  | 47.6  | 39.0  | 34.6  | 31.8  | 28.9  | 27.4  |
| 67.5° | 52.0  | 52.0  | 49.1  | 46.2  | 40.4  | 34.6  | 30.3  | 27.4  | 26.0  | 23.1  | 21.7  |
| 70°   | 36.1  | 36.1  | 34.6  | 33.2  | 28.9  | 24.5  | 23.1  | 20.2  | 18.8  | 17.3  | 15.9  |
| 72.5° | 23.1  | 23.1  | 23.1  | 20.2  | 18.8  | 15.9  | 15.9  | 14.4  | 13.0  | 11.5  | 11.5  |
| 75°   | 11.5  | 13.0  | 11.5  | 11.5  | 10.1  | 10.1  | 8.7   | 8.7   | 7.2   | 7.2   | 5.8   |
| 77.5° | 4.3   | 4.3   | 4.3   | 4.3   | 4.3   | 4.3   | 2.9   | 2.9   | 2.9   | 2.9   | 2.9   |
| 80°   | 1.4   | 1.4   | 1.4   | 1.4   | 1.4   | 1.4   | 1.4   | 1.4   | 0.0   | 0.0   | 0.0   |
| 82.5° | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 85°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 90°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

TEST NUMBER: P1254910

CATALOG NUMBER: P3A13R709035DE010 E3LSWW1H

**CANDELA DISTRIBUTION (continued):**

|       | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 255.5 | 255.5 | 255.5 | 255.5 | 255.5 | 255.5 | 255.5 | 255.5 | 255.5 | 255.5 |
| 2.5°  | 251.2 | 246.9 | 244.0 | 239.6 | 236.8 | 233.9 | 232.4 | 231.0 | 231.0 | 231.0 |
| 5°    | 244.0 | 236.8 | 229.5 | 222.3 | 218.0 | 213.7 | 209.3 | 207.9 | 206.4 | 206.4 |
| 7.5°  | 235.3 | 223.8 | 213.7 | 205.0 | 197.8 | 193.5 | 189.1 | 186.2 | 184.8 | 184.8 |
| 10°   | 223.8 | 209.3 | 197.8 | 186.2 | 179.0 | 173.2 | 170.4 | 166.0 | 166.0 | 164.6 |
| 12.5° | 210.8 | 193.5 | 180.5 | 170.4 | 163.1 | 155.9 | 151.6 | 148.7 | 147.3 | 147.3 |
| 15°   | 196.3 | 179.0 | 164.6 | 153.0 | 145.8 | 138.6 | 134.3 | 131.4 | 129.9 | 129.9 |
| 17.5° | 181.9 | 163.1 | 148.7 | 137.1 | 129.9 | 122.7 | 118.4 | 115.5 | 115.5 | 114.0 |
| 20°   | 167.5 | 148.7 | 134.3 | 122.7 | 115.5 | 109.7 | 105.4 | 102.5 | 101.1 | 102.5 |
| 22.5° | 154.5 | 135.7 | 121.3 | 111.2 | 102.5 | 96.7  | 92.4  | 91.0  | 89.5  | 89.5  |
| 25°   | 140.0 | 122.7 | 109.7 | 99.6  | 92.4  | 86.6  | 82.3  | 80.8  | 79.4  | 78.0  |
| 26°   | 135.7 | 118.4 | 105.4 | 95.3  | 88.1  | 82.3  | 79.4  | 76.5  | 75.1  | 75.1  |
| 27.5° | 129.9 | 111.2 | 99.6  | 89.5  | 82.3  | 78.0  | 73.6  | 72.2  | 70.7  | 70.7  |
| 30°   | 116.9 | 101.1 | 89.5  | 80.8  | 75.1  | 69.3  | 66.4  | 65.0  | 63.5  | 63.5  |
| 32.5° | 106.8 | 91.0  | 80.8  | 73.6  | 67.9  | 63.5  | 60.6  | 57.7  | 57.7  | 57.7  |
| 35°   | 96.7  | 82.3  | 73.6  | 66.4  | 60.6  | 56.3  | 54.9  | 53.4  | 52.0  | 52.0  |
| 37.5° | 88.1  | 75.1  | 66.4  | 60.6  | 56.3  | 52.0  | 49.1  | 47.6  | 47.6  | 47.6  |
| 40°   | 79.4  | 69.3  | 60.6  | 54.9  | 50.5  | 47.6  | 44.8  | 43.3  | 43.3  | 43.3  |
| 42.5° | 72.2  | 62.1  | 56.3  | 50.5  | 46.2  | 43.3  | 41.9  | 40.4  | 39.0  | 39.0  |
| 45°   | 66.4  | 57.7  | 50.5  | 46.2  | 43.3  | 40.4  | 37.5  | 36.1  | 36.1  | 36.1  |
| 47.5° | 59.2  | 53.4  | 46.2  | 41.9  | 39.0  | 36.1  | 34.6  | 33.2  | 33.2  | 33.2  |
| 50°   | 54.9  | 49.1  | 43.3  | 39.0  | 36.1  | 33.2  | 31.8  | 30.3  | 30.3  | 30.3  |
| 52.5° | 49.1  | 44.8  | 40.4  | 36.1  | 33.2  | 30.3  | 28.9  | 27.4  | 27.4  | 27.4  |
| 55°   | 44.8  | 40.4  | 36.1  | 33.2  | 30.3  | 27.4  | 26.0  | 24.5  | 24.5  | 24.5  |
| 57.5° | 40.4  | 36.1  | 33.2  | 30.3  | 27.4  | 26.0  | 23.1  | 23.1  | 21.7  | 21.7  |
| 60°   | 36.1  | 31.8  | 28.9  | 27.4  | 24.5  | 23.1  | 20.2  | 18.8  | 18.8  | 18.8  |
| 62.5° | 30.3  | 28.9  | 26.0  | 23.1  | 20.2  | 18.8  | 17.3  | 15.9  | 15.9  | 15.9  |
| 65°   | 26.0  | 24.5  | 21.7  | 18.8  | 17.3  | 15.9  | 14.4  | 13.0  | 13.0  | 13.0  |
| 67.5° | 21.7  | 18.8  | 17.3  | 15.9  | 14.4  | 13.0  | 11.5  | 10.1  | 8.7   | 10.1  |
| 70°   | 15.9  | 14.4  | 13.0  | 11.5  | 10.1  | 8.7   | 7.2   | 7.2   | 5.8   | 5.8   |
| 72.5° | 10.1  | 8.7   | 8.7   | 7.2   | 5.8   | 5.8   | 4.3   | 4.3   | 2.9   | 2.9   |
| 75°   | 5.8   | 5.8   | 4.3   | 4.3   | 2.9   | 2.9   | 1.4   | 1.4   | 1.4   | 1.4   |
| 77.5° | 2.9   | 1.4   | 1.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 80°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 82.5° | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 85°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 90°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

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

Report Prepared for

Cooper Lighting Solutions

IRiS

Report Number: SP1-2504-409-24

Test Date: 05/15/2025

Luminaire Tested: LD3A17R159035D010 E3D1WH

Data in this report applies to families of products including LD3A

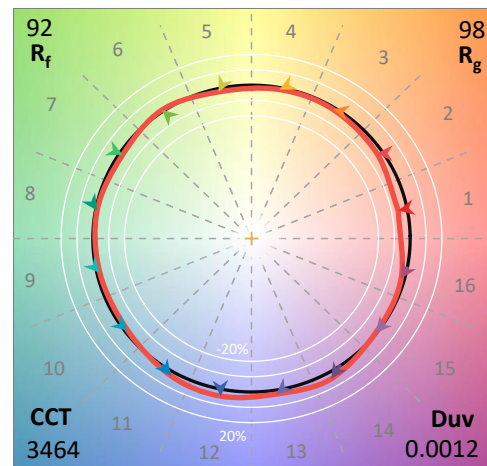
### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2504-409-24  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 09/15/2025  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: IRiS  
 Catalog Number: **LD3A17R159035D010 E3D1WH**  
 Description: 3in Adjustable LED luminaire with, R15 optic, 3500K CCT AND, 90CRI LEDS, E3D1WH TRIM

### Spectral Parameters

CCT (K): 3464  
 CIE  $u'$ : 0.2361  
 CIE  $v'$ : 0.5136  
 Duv: 0.0012  
 CIE x: 0.4086  
 CIE y: 0.3951  
 CIE z: 0.1963  
 Peak Wavelength (nm): 614  
 Dominant Wavelength (nm): 580  
 Purity: 41.2143  
 R<sub>f</sub>: 91.8  
 R<sub>g</sub>: 98.4

CRI (Ra): 92.8  
 R1: 93.1  
 R2: 95.9  
 R3: 98.0  
 R4: 94.1  
 R5: 92.9  
 R6: 95.0  
 R7: 92.5  
 R8: 81.1  
 R9: 53.9  
 R10: 89.9  
 R11: 95.7  
 R12: 78.6  
 R13: 94.0  
 R14: 98.5  
 R15: 88.0



### Test Conditions

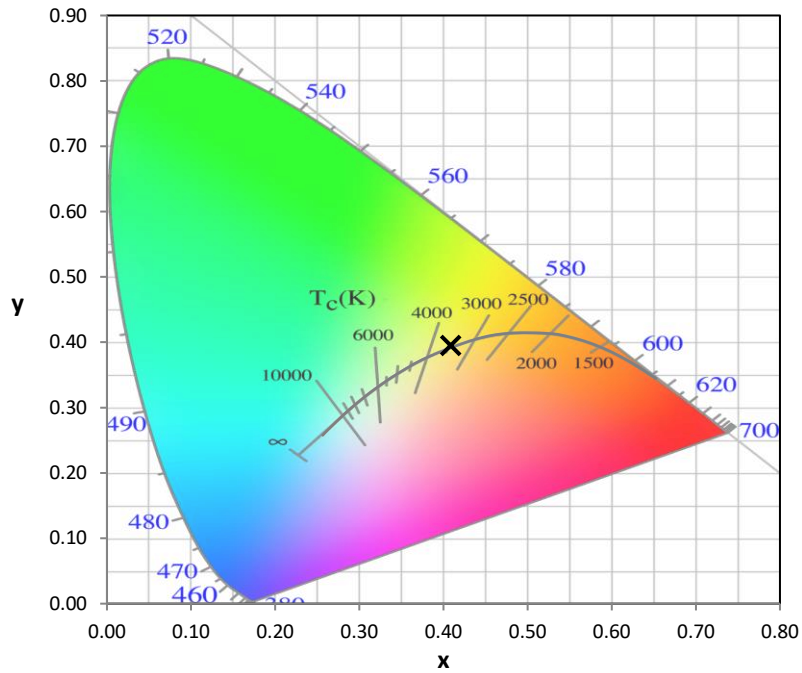
Stabilization Time: 62M  
 Operation Time: 2H 2M  
 Sphere Temperature (°C): 25.0

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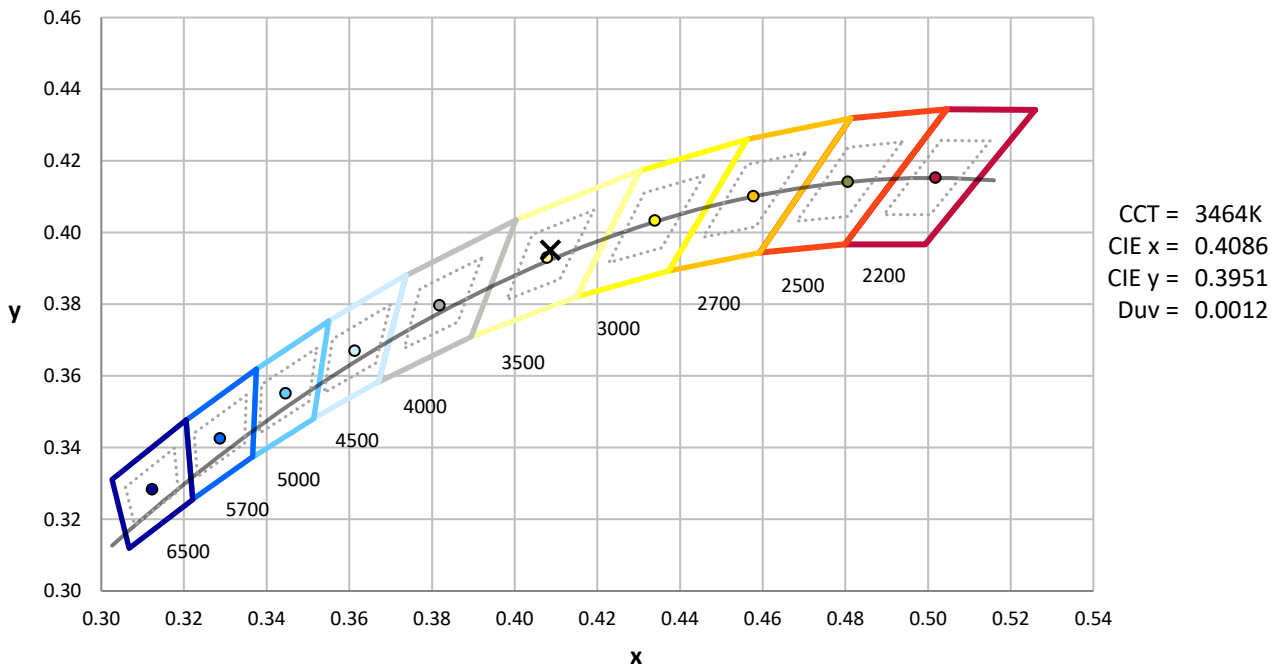
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| 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**



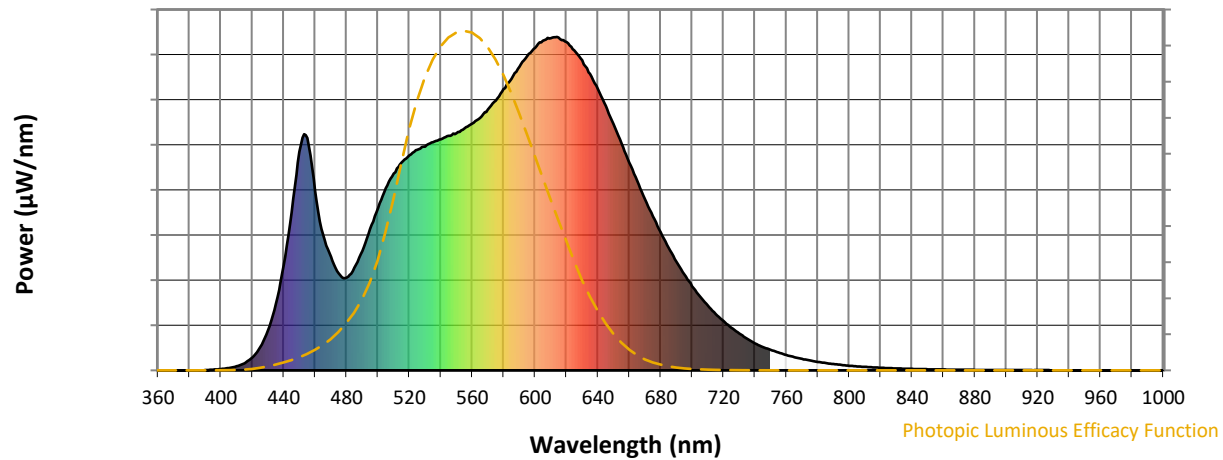
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 3500K 4-step quadrangle

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### Photopic Flux vs. Wavelength

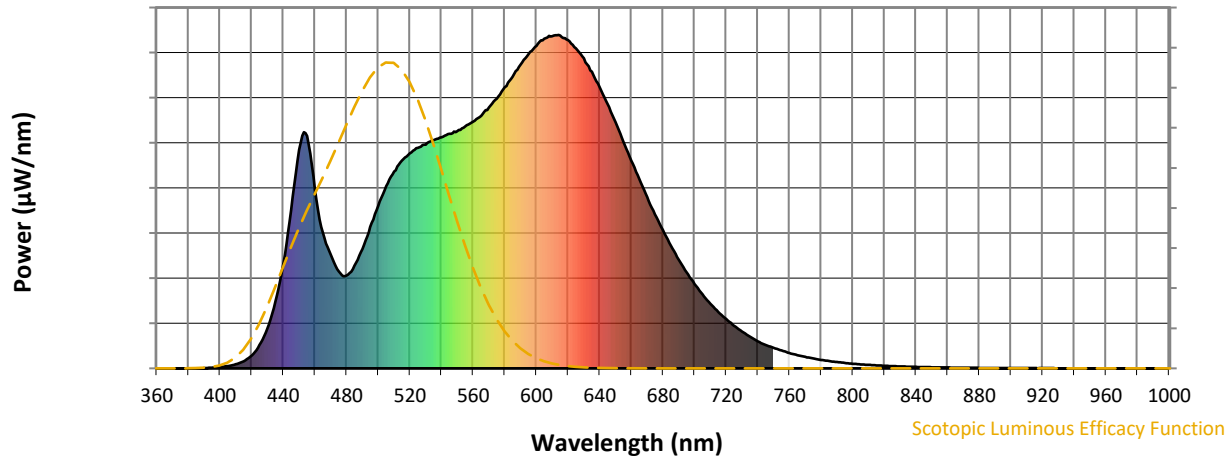


### Photopic Lumens: NR

| $\lambda$<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               | 358                                  | NR                             | 620               | 985                                  | NR                             | 750               | 62                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 424                                  | NR                             | 625               | 960                                  | NR                             | 755               | 53                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 486                                  | NR                             | 630               | 930                                  | NR                             | 760               | 46                                   | NR                             | 890               | 1                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 547                                  | NR                             | 635               | 889                                  | NR                             | 765               | 40                                   | NR                             | 895               | 1                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 590                                  | NR                             | 640               | 844                                  | NR                             | 770               | 34                                   | NR                             | 900               | 1                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 623                                  | NR                             | 645               | 792                                  | NR                             | 775               | 30                                   | NR                             | 905               | 1                                    | NR                             |
| 390               | 1                                    | NR                             | 520               | 645                                  | NR                             | 650               | 738                                  | NR                             | 780               | 25                                   | NR                             | 910               | 1                                    | NR                             |
| 395               | 2                                    | NR                             | 525               | 662                                  | NR                             | 655               | 681                                  | NR                             | 785               | 22                                   | NR                             | 915               | 1                                    | NR                             |
| 400               | 4                                    | NR                             | 530               | 671                                  | NR                             | 660               | 623                                  | NR                             | 790               | 19                                   | NR                             | 920               | 1                                    | NR                             |
| 405               | 7                                    | NR                             | 535               | 685                                  | NR                             | 665               | 568                                  | NR                             | 795               | 16                                   | NR                             | 925               | 1                                    | NR                             |
| 410               | 12                                   | NR                             | 540               | 693                                  | NR                             | 670               | 513                                  | NR                             | 800               | 14                                   | NR                             | 930               | 0                                    | NR                             |
| 415               | 22                                   | NR                             | 545               | 704                                  | NR                             | 675               | 461                                  | NR                             | 805               | 12                                   | NR                             | 935               | 0                                    | NR                             |
| 420               | 39                                   | NR                             | 550               | 712                                  | NR                             | 680               | 414                                  | NR                             | 810               | 10                                   | NR                             | 940               | 0                                    | NR                             |
| 425               | 70                                   | NR                             | 555               | 726                                  | NR                             | 685               | 368                                  | NR                             | 815               | 9                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 120                                  | NR                             | 560               | 740                                  | NR                             | 690               | 326                                  | NR                             | 820               | 8                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 200                                  | NR                             | 565               | 757                                  | NR                             | 695               | 288                                  | NR                             | 825               | 7                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 315                                  | NR                             | 570               | 782                                  | NR                             | 700               | 253                                  | NR                             | 830               | 6                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 475                                  | NR                             | 575               | 809                                  | NR                             | 705               | 222                                  | NR                             | 835               | 5                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 656                                  | NR                             | 580               | 844                                  | NR                             | 710               | 194                                  | NR                             | 840               | 4                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 697                                  | NR                             | 585               | 874                                  | NR                             | 715               | 169                                  | NR                             | 845               | 4                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 539                                  | NR                             | 590               | 911                                  | NR                             | 720               | 148                                  | NR                             | 850               | 3                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 408                                  | NR                             | 595               | 943                                  | NR                             | 725               | 128                                  | NR                             | 855               | 3                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 341                                  | NR                             | 600               | 968                                  | NR                             | 730               | 111                                  | NR                             | 860               | 2                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 291                                  | NR                             | 605               | 988                                  | NR                             | 735               | 95                                   | NR                             | 865               | 2                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 278                                  | NR                             | 610               | 996                                  | NR                             | 740               | 81                                   | NR                             | 870               | 2                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 308                                  | NR                             | 615               | 998                                  | NR                             | 745               | 70                                   | NR                             | 875               | 2                                    | NR                             |                   |                                      |                                |

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### Scotopic Flux vs. Wavelength



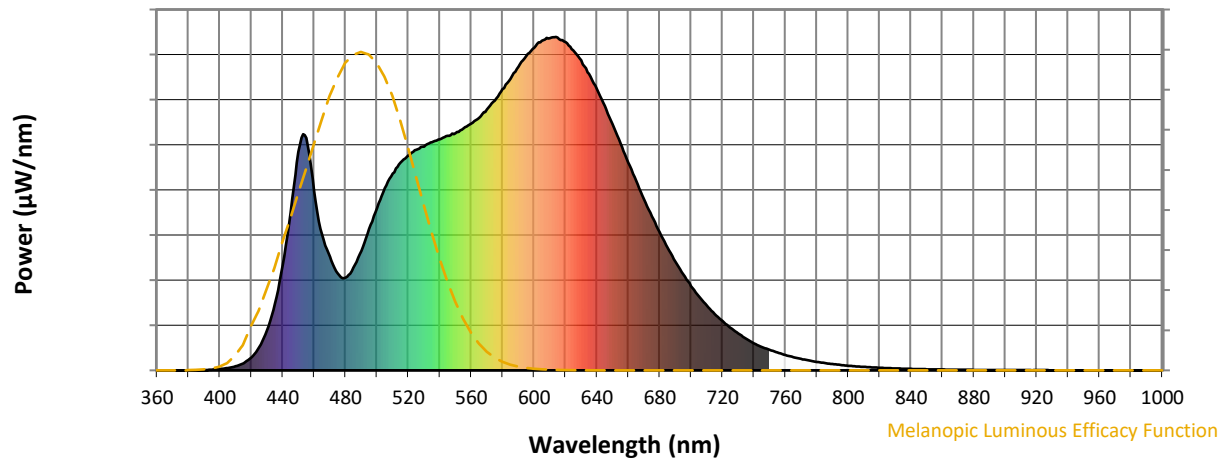
Scotopic Lumens: NR

S/P: 1.6

| $\lambda$<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               | 358                                  | NR                             | 620               | 985                                  | NR                             | 750               | 62                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 424                                  | NR                             | 625               | 960                                  | NR                             | 755               | 53                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 486                                  | NR                             | 630               | 930                                  | NR                             | 760               | 46                                   | NR                             | 890               | 1                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 547                                  | NR                             | 635               | 889                                  | NR                             | 765               | 40                                   | NR                             | 895               | 1                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 590                                  | NR                             | 640               | 844                                  | NR                             | 770               | 34                                   | NR                             | 900               | 1                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 623                                  | NR                             | 645               | 792                                  | NR                             | 775               | 30                                   | NR                             | 905               | 1                                    | NR                             |
| 390               | 1                                    | NR                             | 520               | 645                                  | NR                             | 650               | 738                                  | NR                             | 780               | 25                                   | NR                             | 910               | 1                                    | NR                             |
| 395               | 2                                    | NR                             | 525               | 662                                  | NR                             | 655               | 681                                  | NR                             | 785               | 22                                   | NR                             | 915               | 1                                    | NR                             |
| 400               | 4                                    | NR                             | 530               | 671                                  | NR                             | 660               | 623                                  | NR                             | 790               | 19                                   | NR                             | 920               | 1                                    | NR                             |
| 405               | 7                                    | NR                             | 535               | 685                                  | NR                             | 665               | 568                                  | NR                             | 795               | 16                                   | NR                             | 925               | 1                                    | NR                             |
| 410               | 12                                   | NR                             | 540               | 693                                  | NR                             | 670               | 513                                  | NR                             | 800               | 14                                   | NR                             | 930               | 0                                    | NR                             |
| 415               | 22                                   | NR                             | 545               | 704                                  | NR                             | 675               | 461                                  | NR                             | 805               | 12                                   | NR                             | 935               | 0                                    | NR                             |
| 420               | 39                                   | NR                             | 550               | 712                                  | NR                             | 680               | 414                                  | NR                             | 810               | 10                                   | NR                             | 940               | 0                                    | NR                             |
| 425               | 70                                   | NR                             | 555               | 726                                  | NR                             | 685               | 368                                  | NR                             | 815               | 9                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 120                                  | NR                             | 560               | 740                                  | NR                             | 690               | 326                                  | NR                             | 820               | 8                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 200                                  | NR                             | 565               | 757                                  | NR                             | 695               | 288                                  | NR                             | 825               | 7                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 315                                  | NR                             | 570               | 782                                  | NR                             | 700               | 253                                  | NR                             | 830               | 6                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 475                                  | NR                             | 575               | 809                                  | NR                             | 705               | 222                                  | NR                             | 835               | 5                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 656                                  | NR                             | 580               | 844                                  | NR                             | 710               | 194                                  | NR                             | 840               | 4                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 697                                  | NR                             | 585               | 874                                  | NR                             | 715               | 169                                  | NR                             | 845               | 4                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 539                                  | NR                             | 590               | 911                                  | NR                             | 720               | 148                                  | NR                             | 850               | 3                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 408                                  | NR                             | 595               | 943                                  | NR                             | 725               | 128                                  | NR                             | 855               | 3                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 341                                  | NR                             | 600               | 968                                  | NR                             | 730               | 111                                  | NR                             | 860               | 2                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 291                                  | NR                             | 605               | 988                                  | NR                             | 735               | 95                                   | NR                             | 865               | 2                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 278                                  | NR                             | 610               | 996                                  | NR                             | 740               | 81                                   | NR                             | 870               | 2                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 308                                  | NR                             | 615               | 998                                  | NR                             | 745               | 70                                   | NR                             | 875               | 2                                    | NR                             |                   |                                      |                                |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.22

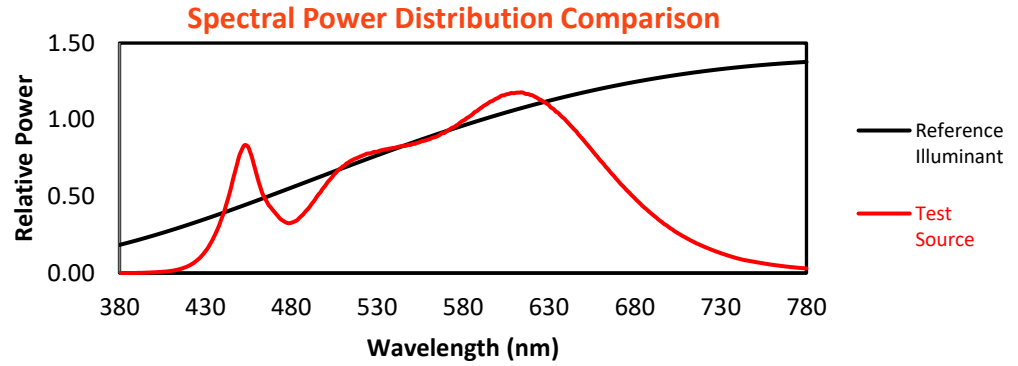
| $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | 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               | 358                                    | NR                             | 620               | 985                                    | NR                             | 750               | 62                                     | NR                             | 880               | 1                                      | NR                             |
| 365               | 0                                      | NR                             | 495               | 424                                    | NR                             | 625               | 960                                    | NR                             | 755               | 53                                     | NR                             | 885               | 1                                      | NR                             |
| 370               | 0                                      | NR                             | 500               | 486                                    | NR                             | 630               | 930                                    | NR                             | 760               | 46                                     | NR                             | 890               | 1                                      | NR                             |
| 375               | 0                                      | NR                             | 505               | 547                                    | NR                             | 635               | 889                                    | NR                             | 765               | 40                                     | NR                             | 895               | 1                                      | NR                             |
| 380               | 0                                      | NR                             | 510               | 590                                    | NR                             | 640               | 844                                    | NR                             | 770               | 34                                     | NR                             | 900               | 1                                      | NR                             |
| 385               | 0                                      | NR                             | 515               | 623                                    | NR                             | 645               | 792                                    | NR                             | 775               | 30                                     | NR                             | 905               | 1                                      | NR                             |
| 390               | 1                                      | NR                             | 520               | 645                                    | NR                             | 650               | 738                                    | NR                             | 780               | 25                                     | NR                             | 910               | 1                                      | NR                             |
| 395               | 2                                      | NR                             | 525               | 662                                    | NR                             | 655               | 681                                    | NR                             | 785               | 22                                     | NR                             | 915               | 1                                      | NR                             |
| 400               | 4                                      | NR                             | 530               | 671                                    | NR                             | 660               | 623                                    | NR                             | 790               | 19                                     | NR                             | 920               | 1                                      | NR                             |
| 405               | 7                                      | NR                             | 535               | 685                                    | NR                             | 665               | 568                                    | NR                             | 795               | 16                                     | NR                             | 925               | 1                                      | NR                             |
| 410               | 12                                     | NR                             | 540               | 693                                    | NR                             | 670               | 513                                    | NR                             | 800               | 14                                     | NR                             | 930               | 0                                      | NR                             |
| 415               | 22                                     | NR                             | 545               | 704                                    | NR                             | 675               | 461                                    | NR                             | 805               | 12                                     | NR                             | 935               | 0                                      | NR                             |
| 420               | 39                                     | NR                             | 550               | 712                                    | NR                             | 680               | 414                                    | NR                             | 810               | 10                                     | NR                             | 940               | 0                                      | NR                             |
| 425               | 70                                     | NR                             | 555               | 726                                    | NR                             | 685               | 368                                    | NR                             | 815               | 9                                      | NR                             | 945               | 0                                      | NR                             |
| 430               | 120                                    | NR                             | 560               | 740                                    | NR                             | 690               | 326                                    | NR                             | 820               | 8                                      | NR                             | 950               | 0                                      | NR                             |
| 435               | 200                                    | NR                             | 565               | 757                                    | NR                             | 695               | 288                                    | NR                             | 825               | 7                                      | NR                             | 955               | 0                                      | NR                             |
| 440               | 315                                    | NR                             | 570               | 782                                    | NR                             | 700               | 253                                    | NR                             | 830               | 6                                      | NR                             | 960               | 0                                      | NR                             |
| 445               | 475                                    | NR                             | 575               | 809                                    | NR                             | 705               | 222                                    | NR                             | 835               | 5                                      | NR                             | 965               | 0                                      | NR                             |
| 450               | 656                                    | NR                             | 580               | 844                                    | NR                             | 710               | 194                                    | NR                             | 840               | 4                                      | NR                             | 970               | 0                                      | NR                             |
| 455               | 697                                    | NR                             | 585               | 874                                    | NR                             | 715               | 169                                    | NR                             | 845               | 4                                      | NR                             | 975               | 0                                      | NR                             |
| 460               | 539                                    | NR                             | 590               | 911                                    | NR                             | 720               | 148                                    | NR                             | 850               | 3                                      | NR                             | 980               | 0                                      | NR                             |
| 465               | 408                                    | NR                             | 595               | 943                                    | NR                             | 725               | 128                                    | NR                             | 855               | 3                                      | NR                             | 985               | 0                                      | NR                             |
| 470               | 341                                    | NR                             | 600               | 968                                    | NR                             | 730               | 111                                    | NR                             | 860               | 2                                      | NR                             | 990               | 0                                      | NR                             |
| 475               | 291                                    | NR                             | 605               | 988                                    | NR                             | 735               | 95                                     | NR                             | 865               | 2                                      | NR                             | 995               | 0                                      | NR                             |
| 480               | 278                                    | NR                             | 610               | 996                                    | NR                             | 740               | 81                                     | NR                             | 870               | 2                                      | NR                             | 1000              | 0                                      | NR                             |
| 485               | 308                                    | NR                             | 615               | 998                                    | NR                             | 745               | 70                                     | NR                             | 875               | 2                                      | NR                             |                   |                                        |                                |

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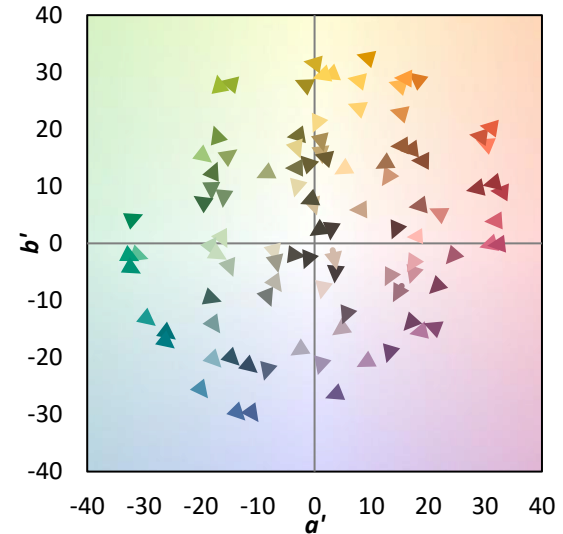
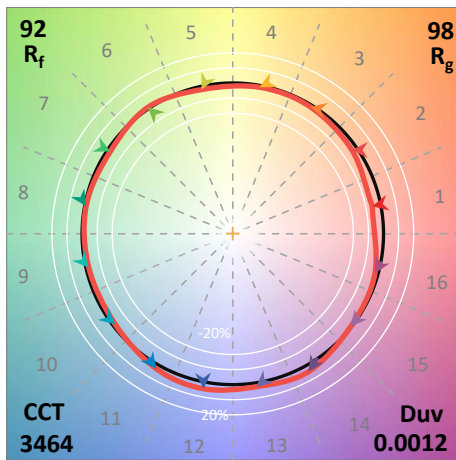
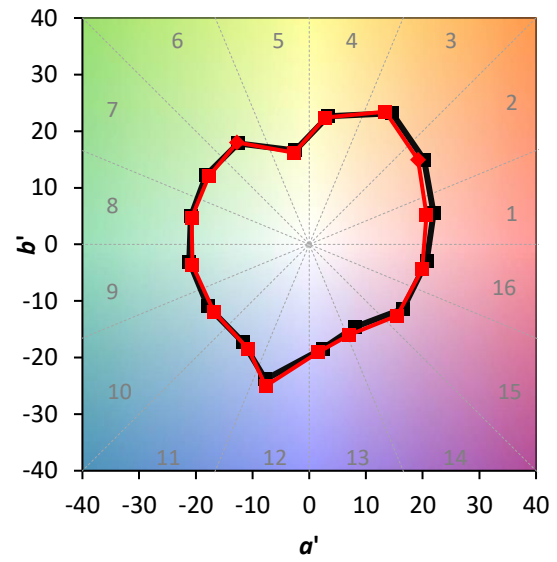
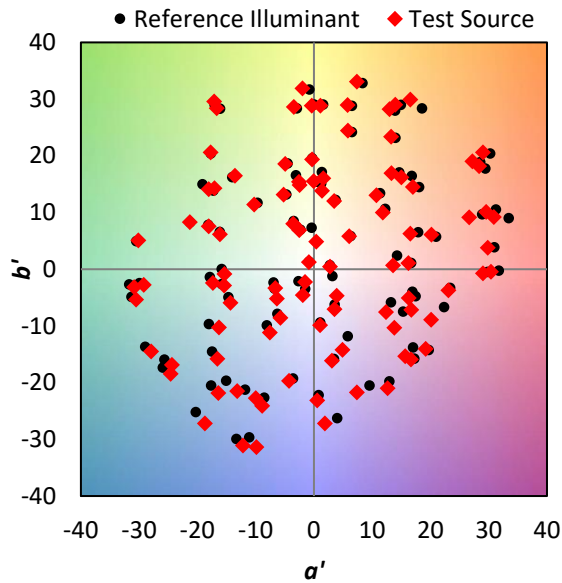
TM-30-18

### Summary

$R_f = 91.8$   
 $R_g = 98.4$   
 $CIE R_a = 92.8$   
 $R_9 = 53.9$

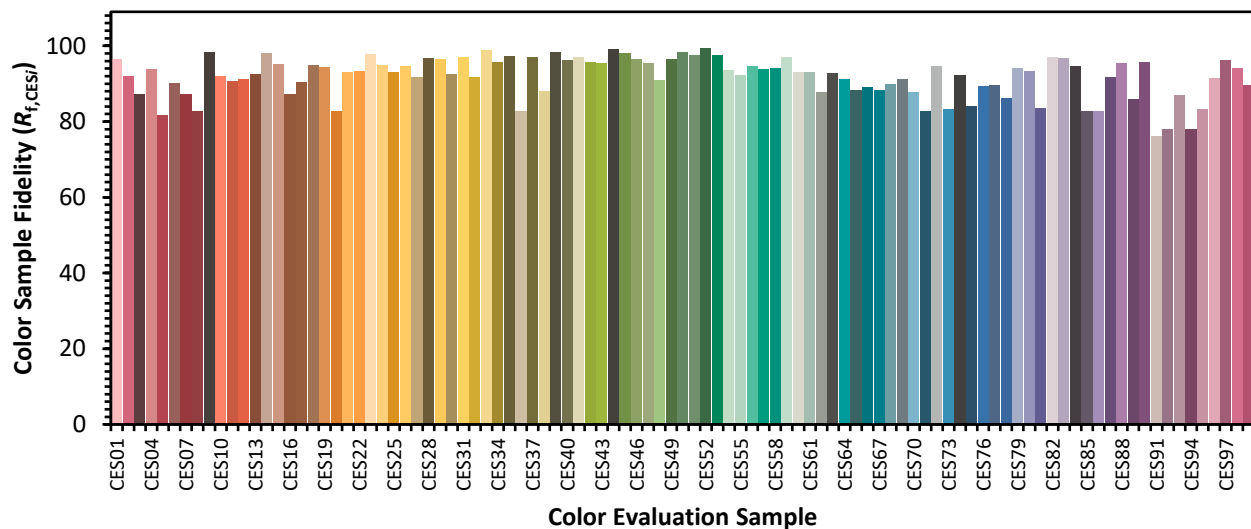


### Color Vector Graphics

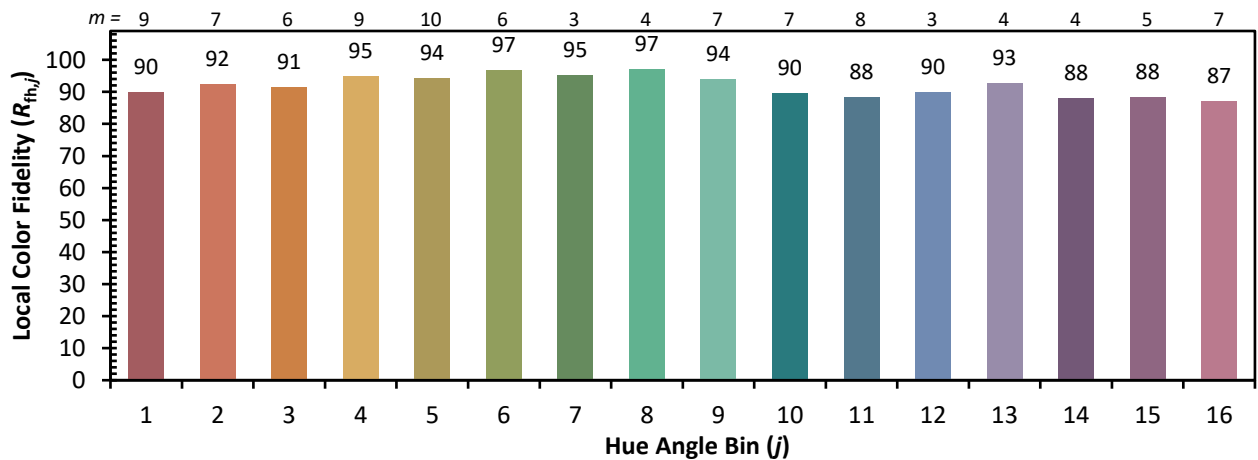
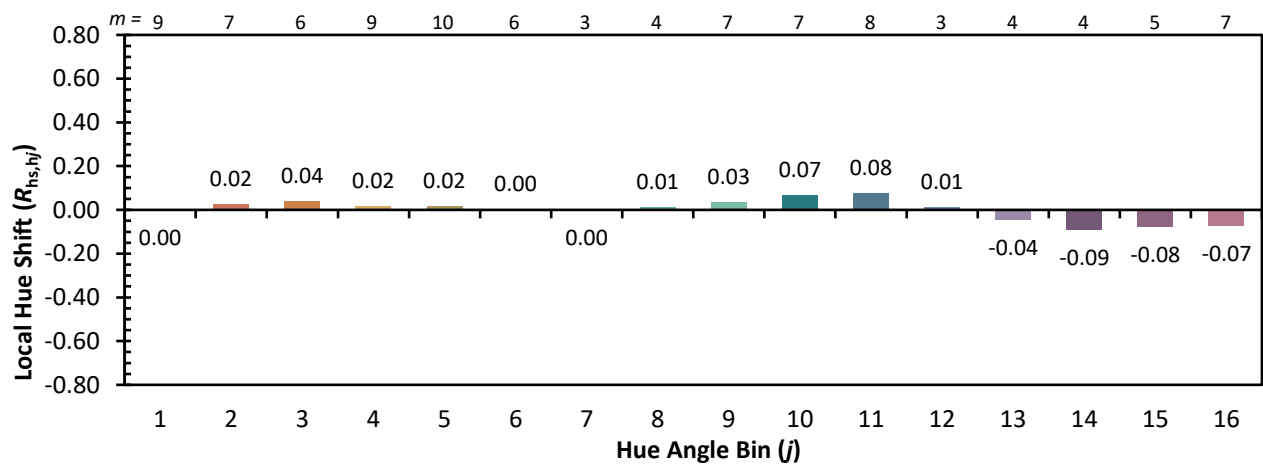
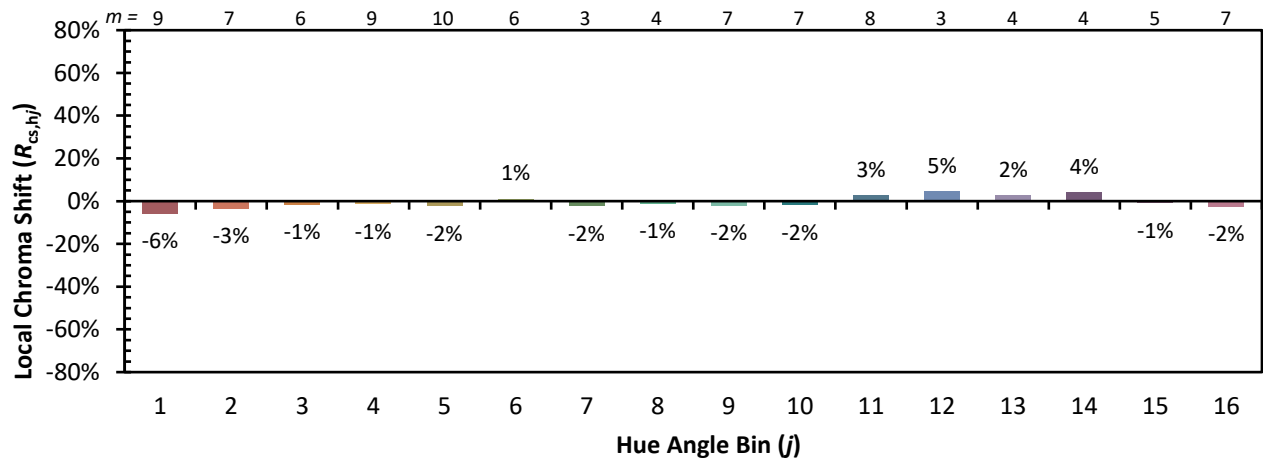


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

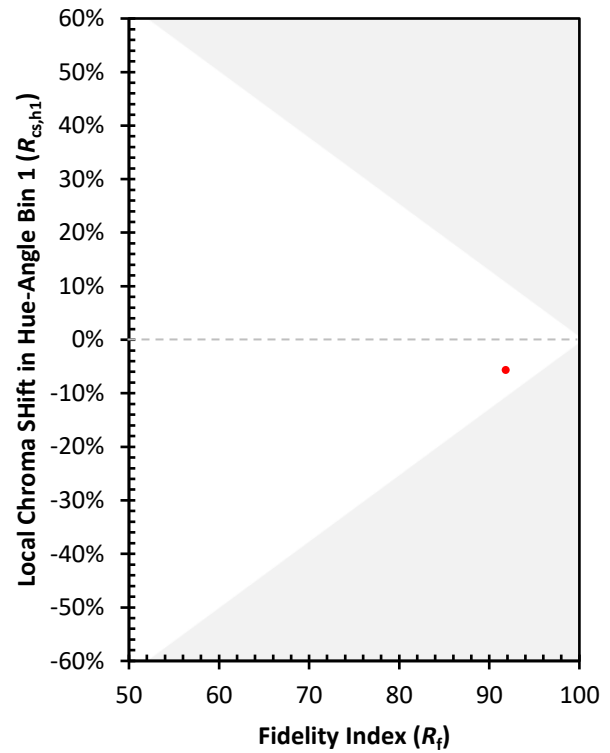
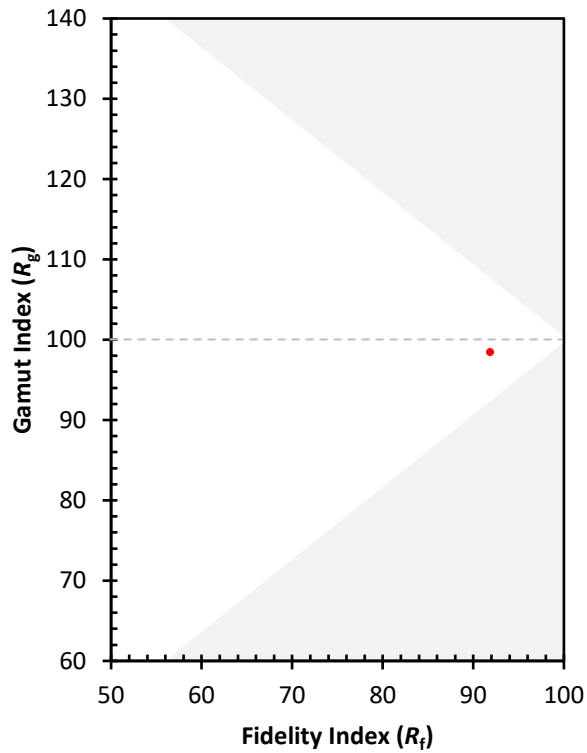
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 95 | CES51 = 98 | CES76 = 89 |
| CES02 = 62 | CES27 = 92 | CES52 = 99 | CES77 = 90 |
| CES03 = 31 | CES28 = 97 | CES53 = 98 | CES78 = 86 |
| CES04 = 70 | CES29 = 97 | CES54 = 93 | CES79 = 94 |
| CES05 = 49 | CES30 = 93 | CES55 = 92 | CES80 = 93 |
| CES06 = 51 | CES31 = 97 | CES56 = 95 | CES81 = 84 |
| CES07 = 42 | CES32 = 92 | CES57 = 94 | CES82 = 97 |
| CES08 = 41 | CES33 = 99 | CES58 = 94 | CES83 = 97 |
| CES09 = 29 | CES34 = 96 | CES59 = 97 | CES84 = 95 |
| CES10 = 75 | CES35 = 97 | CES60 = 93 | CES85 = 83 |
| CES11 = 58 | CES36 = 83 | CES61 = 93 | CES86 = 83 |
| CES12 = 64 | CES37 = 97 | CES62 = 88 | CES87 = 92 |
| CES13 = 43 | CES38 = 88 | CES63 = 93 | CES88 = 96 |
| CES14 = 74 | CES39 = 98 | CES64 = 91 | CES89 = 86 |
| CES15 = 71 | CES40 = 96 | CES65 = 88 | CES90 = 96 |
| CES16 = 47 | CES41 = 97 | CES66 = 89 | CES91 = 76 |
| CES17 = 49 | CES42 = 96 | CES67 = 88 | CES92 = 78 |
| CES18 = 56 | CES43 = 96 | CES68 = 90 | CES93 = 87 |
| CES19 = 71 | CES44 = 99 | CES69 = 91 | CES94 = 78 |
| CES20 = 66 | CES45 = 98 | CES70 = 88 | CES95 = 83 |
| CES21 = 86 | CES46 = 97 | CES71 = 83 | CES96 = 91 |
| CES22 = 78 | CES47 = 95 | CES72 = 95 | CES97 = 96 |
| CES23 = 91 | CES48 = 91 | CES73 = 83 | CES98 = 94 |
| CES24 = 90 | CES49 = 96 | CES74 = 92 | CES99 = 90 |
| CES25 = 71 | CES50 = 98 | CES75 = 84 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)