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

Scaled data based on original data using

LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: STREETWORKS

Report Number: P981312

Luminaire Tested: **FFX-CLB-50-750-U-VM9-T5**

Issue Date: 04/15/2025

Report Generated By 670245763

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

Scaled Data Report

**Test Information**

| | |
|---|---|
| Test Method: | LM-79-08 |
| Report Number: | P981312 |
| Test Lab: | INNOVATION CENTER(G3) |
| Issue Date: | 04/15/2025 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS (FORMERLY EATON) |
| Product Line: | STREETWORKS |
| Catalog Number: | FFX-CLB-50-750-U-VM9-T5 |
| Description: | FAIRFAX POST TOP FIXTURE w/ ULA ACORN 9 INCH NECK |
| Light Source: | (6) 5000K CCT, 70 CRI LEDS |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 8743.9 lumens |
| Efficiency: | N/A |
| Efficacy: | 172.8 lumens/watt |
| Luminous Opening: | Vertical Cylinder (Dia: 1.33' x H: 2.08') |
| IES Classification: | Type V - Short |
| BUG Rating: | B2 - U5 - G4 |

| | |
|---|---|
| Input Watts (W): | 50.6 |
| Input Voltage (V): | 120 |
| Input Current (Ain): | NR |
| Voltage Rise (V): | NR |
| Power Factor: | 0.99 |
| Total Harmonic Distortion (THDi): | 6.12% |
| Frequency (hertz): | 60 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 28.75 FT |

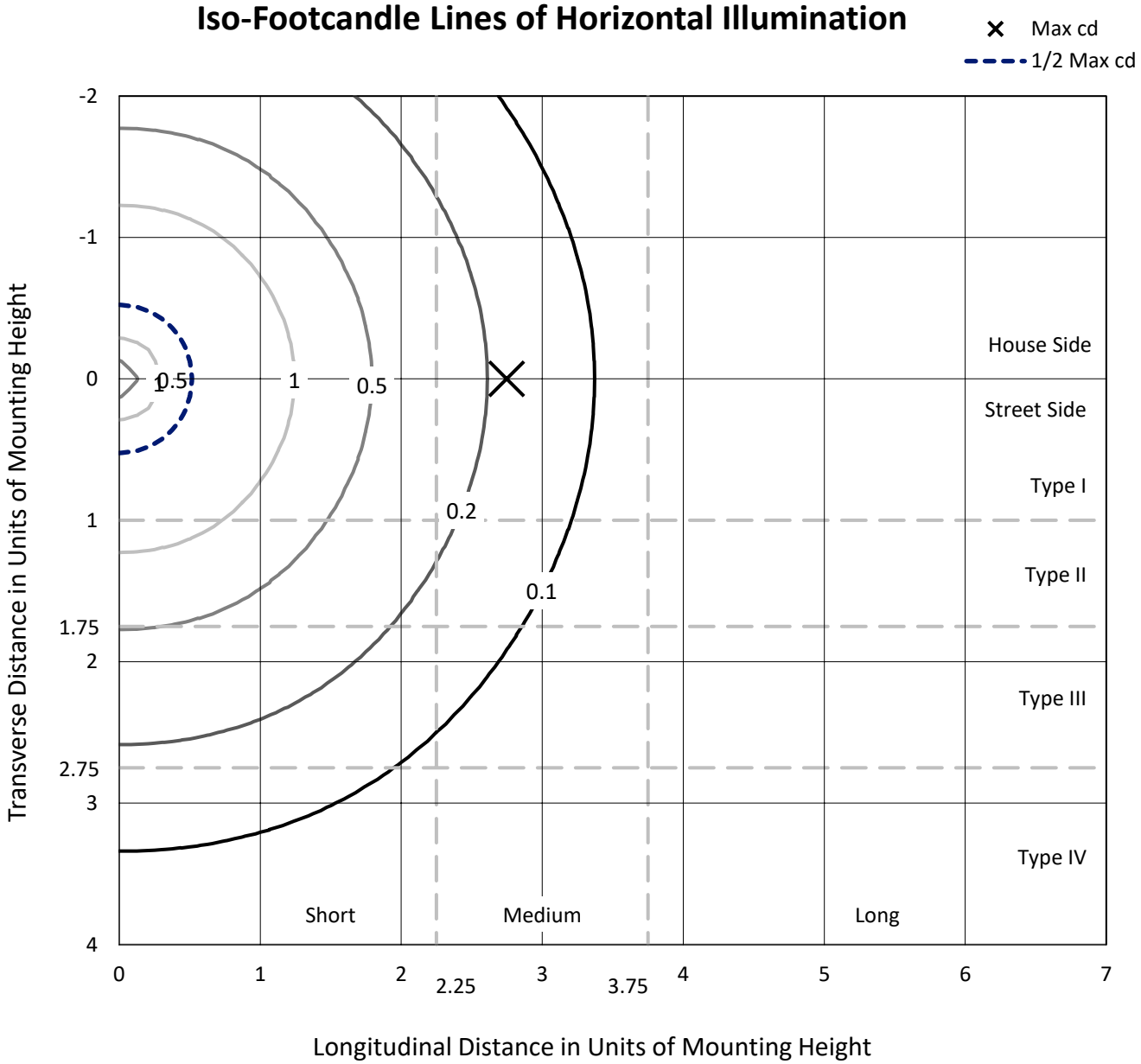


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Scaled Data Report

REPORT NUMBER: P981312
CATALOG NUMBER: FFX-CLB-50-750-U-VM9-T5

## Iso-Footcandle Lines of Horizontal Illumination



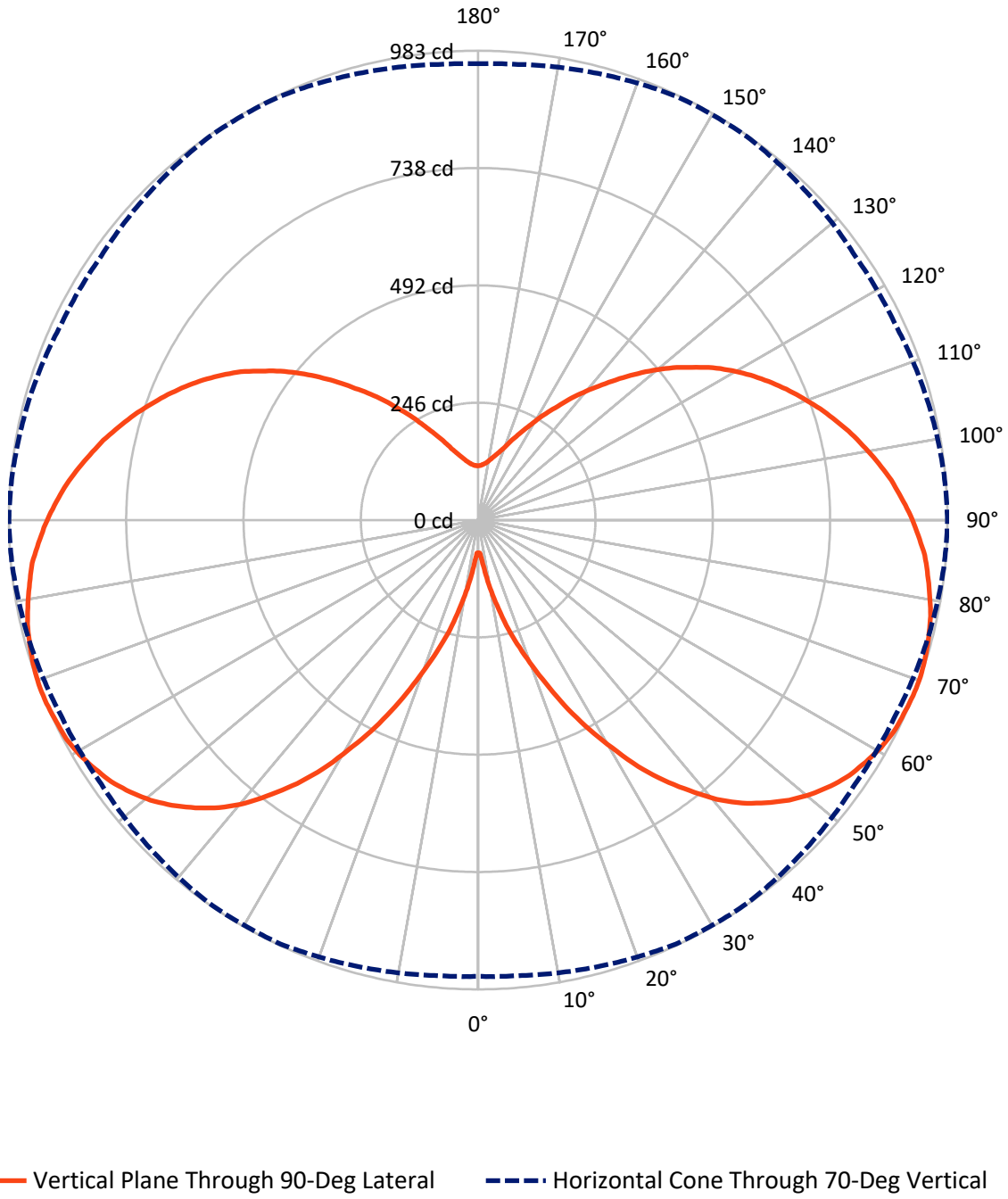

Based on 15 foot mounting height. Maximum calculated value = 1.6 fc
Type V - Short - N/A

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Scaled Data Report

REPORT NUMBER: P981312
CATALOG NUMBER: FFX-CLB-50-750-U-VM9-T5

## Luminous Intensity Polar Plot



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Scaled Data Report

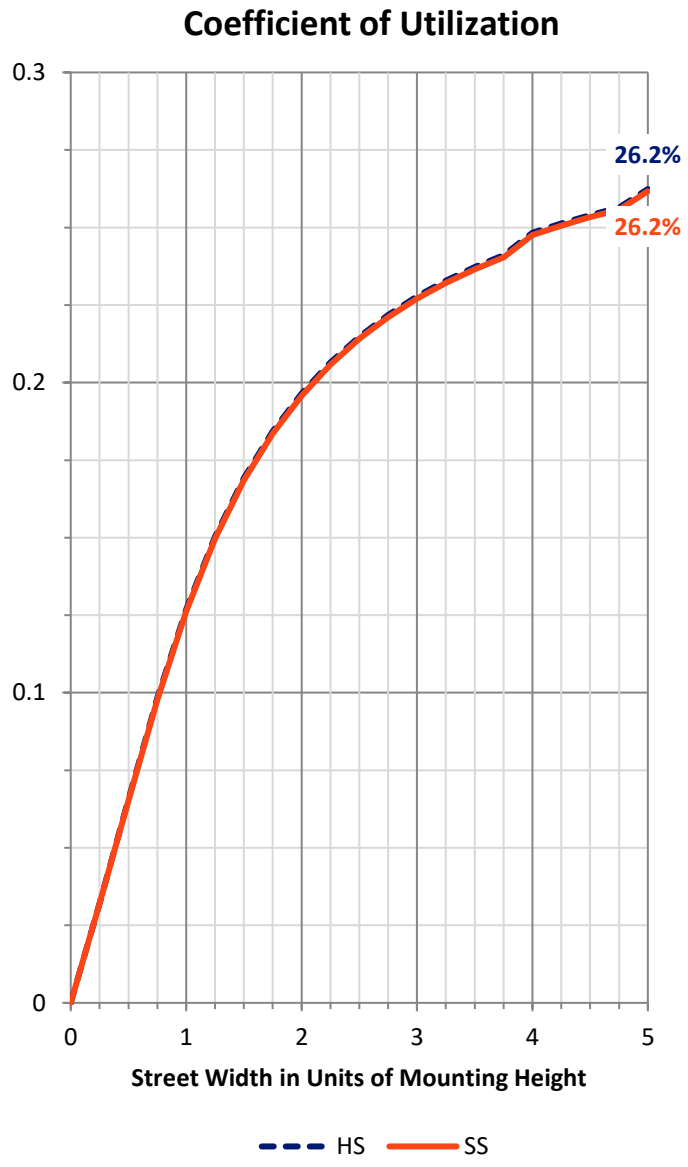
REPORT NUMBER: P981312
CATALOG NUMBER: FFX-CLB-50-750-U-VM9-T5

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 2588.5 | 1783.5 | 4372.0 |
| | % Fixture | 29.6 | 20.4 | 50.0 |
| **Street Side** | Lumens | 2588.5 | 1783.5 | 4372.0 |
| | % Fixture | 29.6 | 20.4 | 50.0 |
| **Total** | Lumens | 5176.9 | 3567.0 | 8743.9 |
| | % Fixture | 59.2 | 40.8 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 10.3 | 0.1 |
| 10°-20° | 69.9 | 0.8 |
| 20°-30° | 205.2 | 2.3 |
| 30°-40° | 417.3 | 4.8 |
| 40°-50° | 647.5 | 7.4 |
| 50°-60° | 836.2 | 9.6 |
| 60°-70° | 961.4 | 11.0 |
| 70°-80° | 1018.8 | 11.7 |
| 80°-90° | 1010.4 | 11.6 |
| 90°-100° | 939.3 | 10.7 |
| 100°-110° | 818.8 | 9.4 |
| 110°-120° | 668.7 | 7.6 |
| 120°-130° | 495.8 | 5.7 |
| 130°-140° | 320.9 | 3.7 |
| 140°-150° | 181.5 | 2.1 |
| 150°-160° | 90.5 | 1.0 |
| 160°-170° | 40.2 | 0.5 |
| 170°-180° | 11.4 | 0.1 |
| 0°-90° | 5176.9 | 59.2 |
| 0°-180° | 8743.9 | 100.0 |



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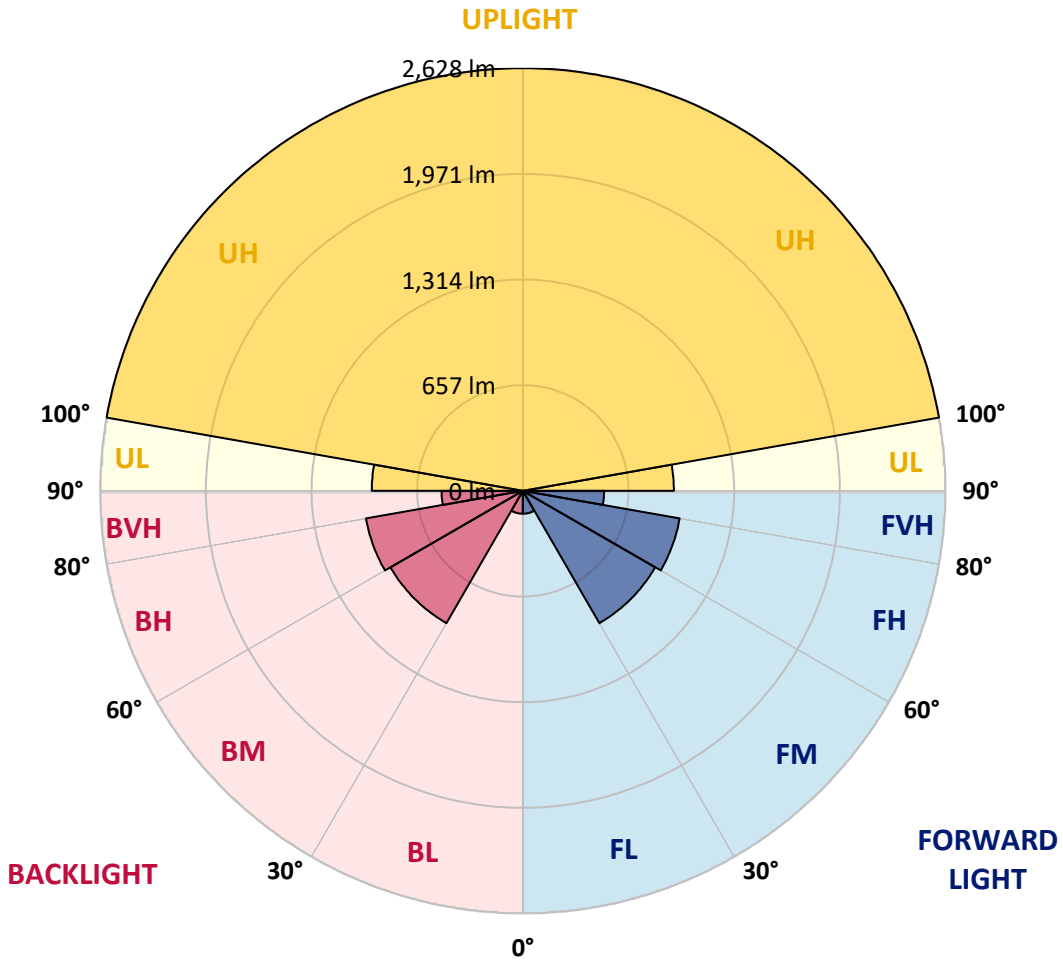
Scaled Data Report

REPORT NUMBER: P981312
CATALOG NUMBER: FFX-CLB-50-750-U-VM9-T5

## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 142.7 | 1.6 | | | |
| FM | (30°-60°) | 950.5 | 10.9 | | | |
| FH | (60°-80°) | 990.1 | 11.3 | | | G1/1800 |
| FVH | (80°-90°) | 505.2 | 5.8 | | | G4/750 |
| BL | (0°-30°) | 142.7 | 1.6 | B1/500 | | |
| BM | (30°-60°) | 950.5 | 10.9 | B1/1000 | | |
| BH | (60°-80°) | 990.1 | 11.3 | B2/1000 | | G1/1800 |
| BVH | (80°-90°) | 505.2 | 5.8 | | | G4/750 |
| UL | (90°-100°) | 939.3 | 10.7 | | U4/1000 | |
| UH | (100°-180°) | 2627.8 | 30.1 | | U5 | |

**BUG Rating: B2-U5-G4**
Type V Short



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Scaled Data Report

REPORT NUMBER: P981312
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**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 85° | 90° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 69.5 | 69.5 | 69.5 | 69.5 | 69.5 | 69.5 | 69.5 | 69.5 | 69.5 | 69.5 | *69.5* |
| 2.5° | 69.5 | 69.5 | 69.5 | 69.5 | 69.0 | 69.0 | 69.0 | 69.0 | 69.0 | 69.0 | *69.0* |
| 5° | 85.8 | 85.3 | 85.3 | 85.8 | 85.8 | 85.8 | 85.3 | 85.8 | 84.8 | 84.2 | *85.3* |
| 7.5° | 115.2 | 115.2 | 115.2 | 115.2 | 114.1 | 114.1 | 115.7 | 114.6 | 115.2 | 114.6 | *115.7* |
| 10° | 150.5 | 150.5 | 150.0 | 151.0 | 151.6 | 151.0 | 150.5 | 152.1 | 151.0 | 151.0 | *152.1* |
| 12.5° | 190.7 | 191.2 | 191.2 | 191.8 | 192.9 | 191.2 | 192.9 | 192.9 | 192.9 | 191.8 | *191.2* |
| 15° | 236.9 | 236.3 | 237.4 | 236.9 | 234.7 | 236.9 | 237.4 | 236.3 | 236.9 | 237.4 | *238.0* |
| 17.5° | 279.8 | 279.3 | 279.8 | 279.3 | 281.4 | 282.0 | 281.4 | 281.4 | 281.4 | 282.0 | *280.9* |
| 20° | 327.1 | 327.6 | 326.0 | 327.6 | 327.6 | 328.7 | 330.9 | 330.3 | 330.9 | 329.2 | *327.6* |
| 22.5° | 378.7 | 379.2 | 377.6 | 377.1 | 380.3 | 379.8 | 379.8 | 381.4 | 382.5 | 382.5 | *381.4* |
| 25° | 434.1 | 433.0 | 433.0 | 434.6 | 434.6 | 434.1 | 436.8 | 437.9 | 437.4 | 439.0 | *440.1* |
| 27.5° | 489.5 | 488.4 | 488.4 | 490.6 | 490.6 | 490.6 | 490.6 | 495.5 | 496.0 | 497.1 | *497.7* |
| 30° | 543.3 | 547.1 | 547.1 | 546.0 | 547.7 | 550.4 | 552.0 | 552.0 | 553.6 | 553.6 | *554.2* |
| 32.5° | 602.0 | 602.0 | 603.1 | 604.7 | 604.7 | 609.6 | 606.9 | 611.2 | 610.1 | 613.4 | *615.6* |
| 35° | 657.4 | 658.5 | 658.5 | 661.7 | 661.7 | 662.8 | 663.4 | 666.1 | 669.9 | 669.4 | *669.9* |
| 37.5° | 709.0 | 708.5 | 707.4 | 712.3 | 713.4 | 712.8 | 713.4 | 717.7 | 718.8 | 720.4 | *719.3* |
| 40° | 756.3 | 754.6 | 757.4 | 760.1 | 760.1 | 761.2 | 762.3 | 764.4 | 766.6 | 767.7 | *769.3* |
| 42.5° | 795.9 | 795.4 | 798.1 | 800.3 | 800.8 | 801.4 | 801.4 | 803.0 | 808.4 | 810.1 | *811.2* |
| 45° | 830.7 | 830.2 | 833.4 | 836.1 | 837.8 | 837.8 | 836.1 | 838.3 | 843.2 | 844.8 | *845.4* |
| 47.5° | 860.6 | 861.1 | 865.5 | 868.7 | 869.8 | 868.2 | 867.1 | 869.3 | 873.1 | 877.4 | *876.9* |
| 50° | 885.6 | 886.1 | 891.0 | 896.5 | 897.0 | 895.4 | 892.6 | 894.3 | 899.7 | 903.0 | *903.5* |
| 52.5° | 906.8 | 907.3 | 913.3 | 918.7 | 919.3 | 916.6 | 913.3 | 916.0 | 920.9 | 924.7 | *925.8* |
| 55° | 923.6 | 925.2 | 931.2 | 937.2 | 938.8 | 935.0 | 930.7 | 932.3 | 937.7 | 943.7 | *944.3* |
| 57.5° | 936.1 | 936.7 | 944.3 | 950.8 | 953.0 | 947.5 | 944.3 | 944.3 | 950.8 | 956.2 | *957.3* |
| 60° | 944.8 | 947.0 | 955.7 | 963.3 | 964.4 | 959.5 | 953.5 | 954.6 | 961.6 | 967.6 | *969.3* |
| 62.5° | 952.4 | 954.6 | 962.7 | 972.0 | 973.1 | 966.5 | 960.6 | 961.1 | 969.3 | 975.2 | *977.4* |
| 65° | 956.2 | 957.8 | 967.6 | 976.9 | 977.9 | 971.4 | 964.4 | 964.9 | 972.5 | 979.6 | *980.1* |
| 67.5° | 957.3 | 958.9 | 969.3 | 980.1 | 980.7 | 973.6 | 965.5 | 967.1 | 974.7 | 981.8 | *982.8* |
| 70° | *956.2* | *958.4* | *968.7* | *980.1* | *981.2* | *972.5* | *964.4* | *965.5* | *974.1* | *981.2* | *983.4* |
| 72.5° | 952.4 | 955.1 | 965.5 | 977.4 | 977.9 | 969.8 | 961.6 | 961.6 | 971.4 | 979.0 | *980.1* |
| 75° | 947.5 | 950.2 | 961.6 | 973.6 | 974.1 | 965.5 | 956.8 | 957.8 | 967.1 | 974.1 | *975.2* |
| 77.5° | 942.1 | 943.7 | 955.1 | 967.6 | 968.7 | 959.5 | 950.8 | 951.9 | 960.6 | 968.2 | *969.3* |
| 80° | 933.4 | 935.0 | 947.0 | 958.9 | 960.0 | 950.8 | 941.5 | 943.7 | 952.4 | 959.5 | *959.5* |
| 82.5° | 923.1 | 924.2 | 936.1 | 949.2 | 949.7 | 940.5 | 932.3 | 933.4 | 942.1 | 949.2 | *949.2* |
| 85° | 911.1 | 912.8 | 924.7 | 937.2 | 937.2 | 928.5 | 919.8 | 922.0 | 930.1 | 936.7 | *938.8* |
| 87.5° | 898.1 | 898.6 | 910.6 | 922.0 | 922.5 | 913.8 | 906.2 | 907.9 | 916.0 | 922.0 | *922.5* |
| 90° | 882.9 | 884.0 | 895.4 | 906.2 | 906.8 | 898.1 | 891.0 | 893.2 | 899.7 | 905.1 | *906.8* |
| 92.5° | 866.0 | 867.7 | 878.5 | 888.8 | 888.3 | 880.7 | 874.7 | 877.4 | 882.9 | 888.3 | *888.3* |
| 95° | 848.6 | 850.8 | 859.5 | 869.3 | 868.2 | 861.7 | 856.8 | 859.0 | 864.4 | 868.7 | *869.8* |
| 97.5° | 830.2 | 830.7 | 839.9 | 847.0 | 847.0 | 841.0 | 837.2 | 838.9 | 844.3 | 847.0 | *848.1* |
| 100° | 810.1 | 810.6 | 817.7 | 824.7 | 824.7 | 819.3 | 816.6 | 818.2 | 822.6 | 824.7 | *825.3* |
| 102.5° | 790.0 | 789.4 | 795.4 | 801.4 | 801.4 | 797.0 | 794.9 | 798.1 | 800.3 | 801.9 | *803.0* |
| 105° | 767.1 | 766.6 | 772.0 | 777.5 | 776.4 | 773.7 | 771.5 | 774.2 | 776.9 | 778.0 | *778.0* |
| 107.5° | 742.2 | 744.3 | 747.6 | 751.9 | 751.4 | 749.2 | 749.2 | 750.8 | 752.5 | 753.0 | *753.6* |
| 110° | 721.0 | 720.4 | 723.7 | 725.9 | 726.4 | 725.3 | 726.4 | 726.9 | 727.5 | 727.5 | *727.5* |

Cooper Lighting Solutions Photometric Lab
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Scaled Data Report

REPORT NUMBER: P981312
CATALOG NUMBER: FFX-CLB-50-750-U-VM9-T5

**CANDELA DISTRIBUTION (continued):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 85° | 90° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 112.5° | 696.5 | 696.5 | 697.6 | 699.2 | 699.8 | 700.3 | 700.9 | 703.0 | 701.9 | 702.5 | *701.4* |
| 115° | 669.9 | 670.4 | 671.5 | 672.1 | 673.2 | 673.7 | 676.4 | 676.4 | 677.0 | 675.9 | *674.2* |
| 117.5° | 643.3 | 644.4 | 643.8 | 643.3 | 645.4 | 647.1 | 648.7 | 649.8 | 649.8 | 647.6 | *646.5* |
| 120° | 614.5 | 613.4 | 613.4 | 613.4 | 615.0 | 617.7 | 619.9 | 620.5 | 619.9 | 617.2 | *616.7* |
| 122.5° | 583.0 | 584.1 | 582.4 | 583.0 | 583.5 | 587.3 | 588.9 | 590.0 | 588.4 | 585.1 | *586.2* |
| 125° | 550.4 | 551.5 | 548.7 | 548.7 | 551.5 | 553.1 | 554.7 | 556.3 | 553.6 | 552.0 | *550.9* |
| 127.5° | 515.6 | 515.6 | 515.1 | 513.4 | 516.7 | 518.3 | 521.6 | 521.6 | 519.4 | 517.2 | *518.3* |
| 130° | 480.3 | 479.7 | 480.8 | 479.7 | 480.3 | 483.5 | 486.3 | 485.2 | 484.1 | 483.0 | *483.0* |
| 132.5° | 443.9 | 445.0 | 443.9 | 443.3 | 446.1 | 447.1 | 449.9 | 450.9 | 448.8 | 446.1 | *447.1* |
| 135° | 409.7 | 409.1 | 408.6 | 408.6 | 410.2 | 412.9 | 414.5 | 414.0 | 414.0 | 412.9 | *411.8* |
| 137.5° | 374.3 | 376.0 | 374.9 | 374.9 | 376.0 | 378.7 | 381.4 | 380.9 | 380.3 | 378.1 | *377.1* |
| 140° | 342.8 | 341.7 | 342.3 | 342.3 | 345.0 | 345.0 | 347.7 | 347.7 | 347.2 | 345.5 | *346.6* |
| 142.5° | 311.3 | 310.8 | 312.9 | 311.9 | 312.9 | 315.7 | 316.7 | 316.2 | 315.1 | 315.7 | *316.2* |
| 145° | 282.5 | 283.1 | 282.5 | 283.1 | 284.7 | 286.3 | 288.5 | 287.4 | 287.4 | 285.8 | *285.2* |
| 147.5° | 255.4 | 255.4 | 254.8 | 257.0 | 257.5 | 259.7 | 260.2 | 260.8 | 259.7 | 258.6 | *260.2* |
| 150° | 231.4 | 230.9 | 230.9 | 231.4 | 232.5 | 234.2 | 235.3 | 235.3 | 235.8 | 234.7 | *234.2* |
| 152.5° | 209.2 | 208.1 | 208.6 | 209.7 | 210.3 | 211.9 | 211.9 | 213.0 | 212.4 | 211.9 | *211.9* |
| 155° | 189.1 | 189.6 | 189.6 | 190.2 | 191.2 | 191.8 | 192.9 | 192.3 | 192.9 | 192.3 | *192.3* |
| 157.5° | 172.8 | 173.9 | 173.9 | 174.4 | 173.9 | 174.4 | 174.9 | 175.5 | 175.5 | 175.5 | *175.5* |
| 160° | 159.7 | 159.2 | 159.2 | 159.2 | 159.2 | 159.7 | 160.8 | 160.3 | 160.8 | 160.3 | *159.7* |
| 162.5° | 147.8 | 147.8 | 147.8 | 147.8 | 148.3 | 148.3 | 148.3 | 148.9 | 148.3 | 148.3 | *148.3* |
| 165° | 138.0 | 138.5 | 138.0 | 138.0 | 138.0 | 138.5 | 138.5 | 138.5 | 138.5 | 138.5 | *138.5* |
| 167.5° | 130.4 | 130.9 | 130.9 | 130.9 | 130.9 | 130.9 | 131.5 | 130.9 | 130.9 | 130.9 | *130.9* |
| 170° | 124.4 | 125.0 | 125.0 | 124.4 | 125.0 | 124.4 | 124.4 | 125.0 | 124.4 | 124.4 | *124.4* |
| 172.5° | 120.1 | 120.1 | 120.1 | 120.1 | 120.1 | 120.1 | 120.1 | 120.1 | 120.1 | 119.5 | *119.5* |
| 175° | 116.3 | 116.3 | 116.3 | 116.3 | 116.3 | 116.3 | 116.3 | 116.3 | 116.3 | 116.3 | *116.3* |
| 177.5° | 114.1 | 114.1 | 114.6 | 114.1 | 114.1 | 114.1 | 114.1 | 114.1 | 114.1 | 114.1 | *114.1* |
| 180° | 113.6 | 113.6 | 113.6 | 113.6 | 113.6 | 113.6 | 113.6 | 113.6 | 113.6 | 113.6 | *113.6* |

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

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

Report Prepared for

Cooper Lighting Solutions

Streetworks

Report Number: SP1-2501-332-5

Test Date: 03/25/2025

Luminaire Tested: FFX-CLB-100-750-U-FR-T5

Data in this report applies to families of products including FFX-CLB-100-750-U-FR-T5

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

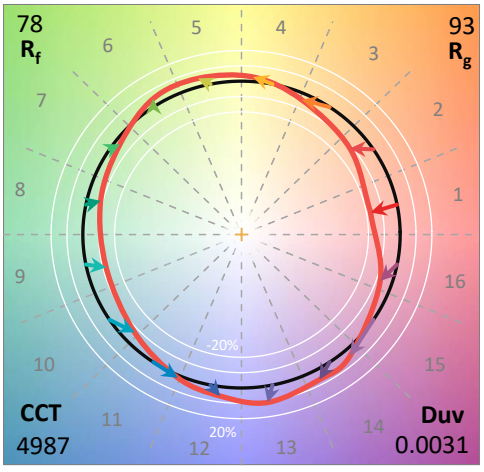
## Test Information

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | SP1-2501-332-5 |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Photometer: | SP1 - 76IN SPHERE |
| Measurement Geometry: | 4π |
| Issue Date: | 03/31/2025 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | Streetworks |
| Catalog Number: | **FFX-CLB-100-750-U-FR-T5** |
| Description: | FAIRFAX ACORN W/ FAIRFAX REFRACTOR 100W T5 |

## Spectral Parameters

| | | | | | |
|---|---|---|---|---|---|
| CCT (K): | 4987 | CRI (Ra): | 75.8 | | |
| CIE u': | 0.2094 | R1: | 71.6 | R9: | -30.4 |
| CIE v': | 0.4882 | R2: | 82.8 | R10: | 59.9 |
| Duv: | 0.0031 | R3: | 91.2 | R11: | 70.9 |
| CIE x: | 0.3461 | R4: | 73.8 | R12: | 51.2 |
| CIE y: | 0.3586 | R5: | 73.0 | R13: | 74.2 |
| CIE z: | 0.2954 | R6: | 76.1 | R14: | 95.3 |
| Peak Wavelength (nm): | 450 | R7: | 82.9 | R15: | 63.7 |
| Dominant Wavelength (nm): | 570 | R8: | 54.9 | | |
| Purity: | 11.4 | | | | |

| | |
|---|---|
| Rf: | 78.3 |
| Rg: | 93.4 |




## Test Conditions

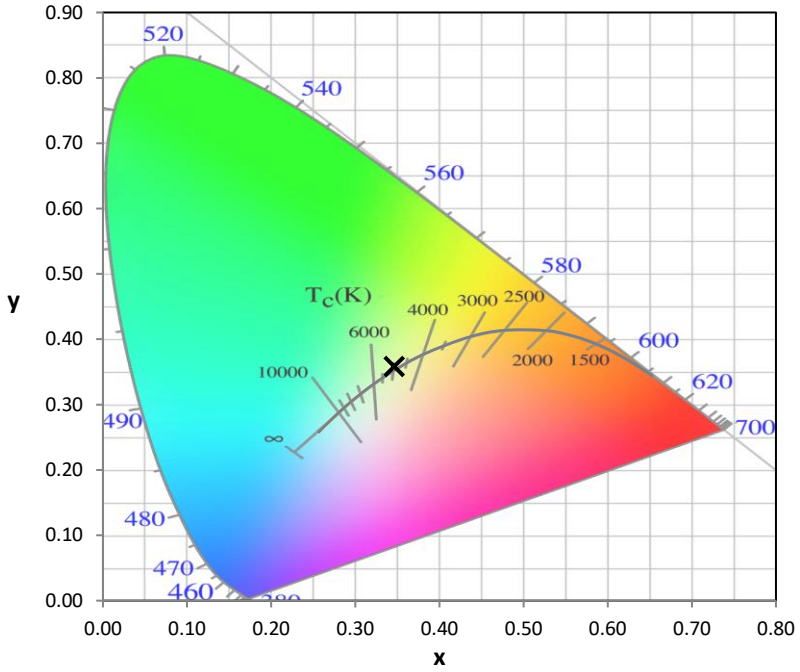
| | |
|---|---|
| Stabilization Time: | 67M |
| Operation Time: | 2H 7M |
| Sphere Temperature (°C): | 24.9 |

REPORT NUMBER: SP1-2501-332-5

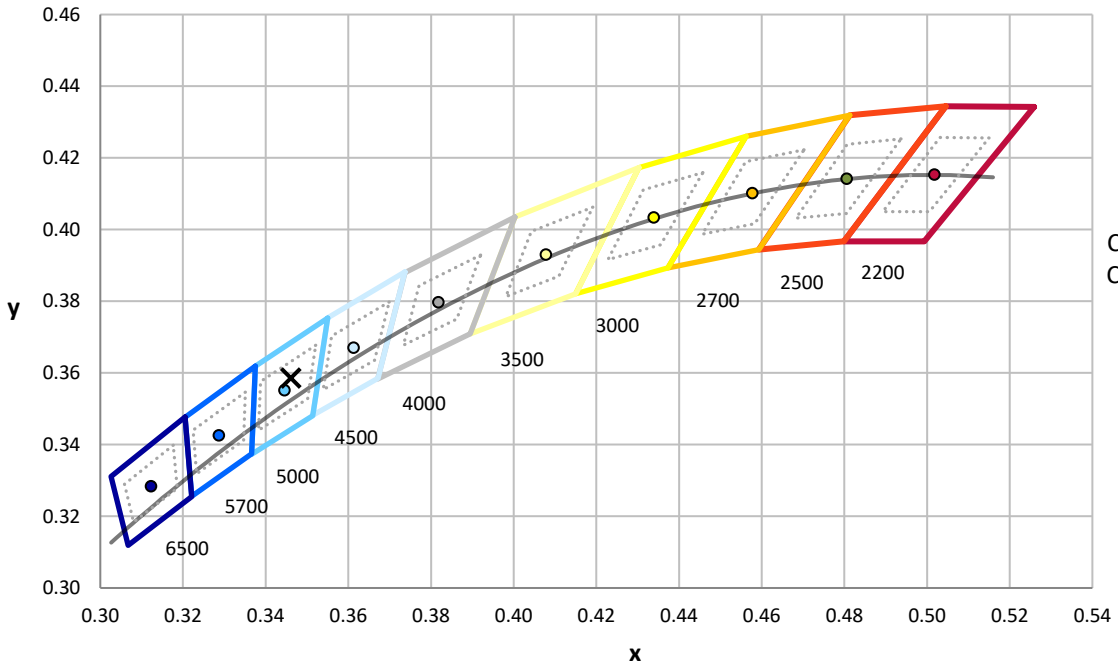
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 12/16/2024 | 6/16/2025 |
| Power Meter | INXT2011004 | 1/21/2025 | 1/21/2026 |
| AC Power Source | IN0063 | 10/22/2024 | 10/22/2025 |
| DC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

REPORT NUMBER: SP1-2501-332-5

**CIE 1931 Chromaticity Diagram**




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

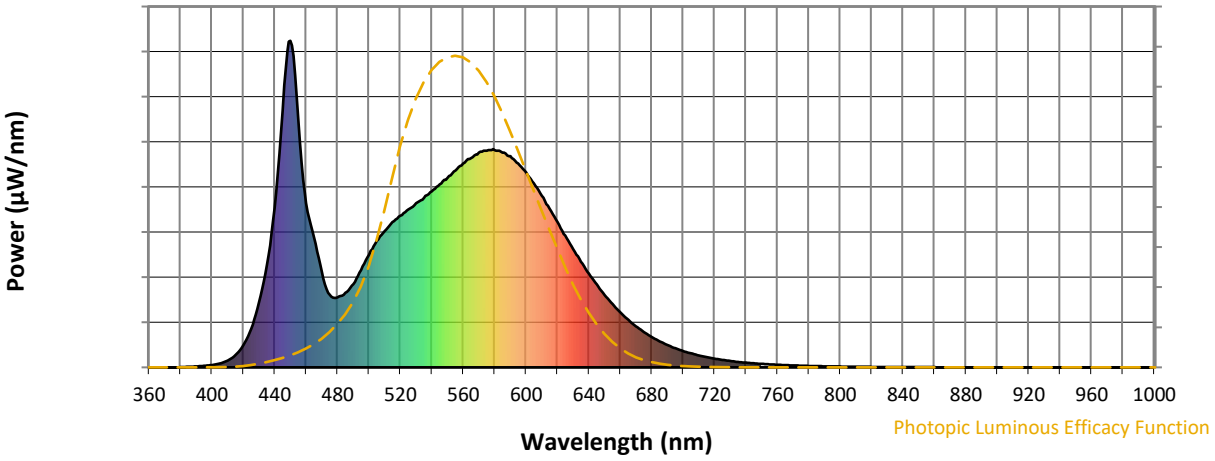



CCT = 4987K
CIE x = 0.3461
CIE y = 0.3586
Duv = 0.0031

Point lies inside the ANSI 5000K 4-step quadrangle

REPORT NUMBER: SP1-2501-332-5

## Photopic Flux vs. Wavelength

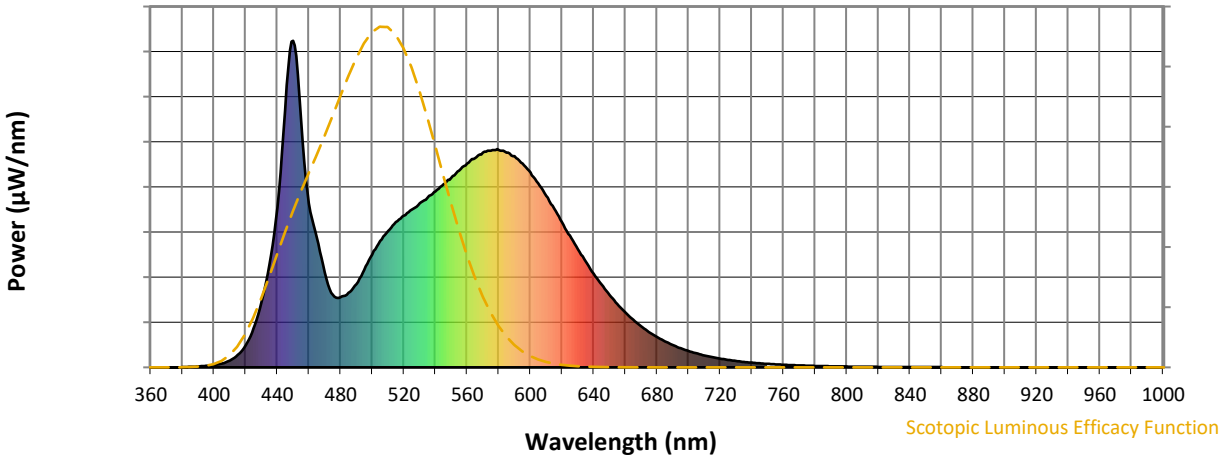



## Photopic Lumens: NR

| λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 0 | NR | 490 | 255 | NR | 620 | 445 | NR | 750 | 11 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 298 | NR | 625 | 403 | NR | 755 | 9 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 345 | NR | 630 | 362 | NR | 760 | 8 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 387 | NR | 635 | 323 | NR | 765 | 7 | NR | 895 | 0 | NR |
| 380 | 1 | NR | 510 | 417 | NR | 640 | 287 | NR | 770 | 6 | NR | 900 | 0 | NR |
| 385 | 2 | NR | 515 | 445 | NR | 645 | 254 | NR | 775 | 5 | NR | 905 | 0 | NR |
| 390 | 3 | NR | 520 | 464 | NR | 650 | 222 | NR | 780 | 4 | NR | 910 | 0 | NR |
| 395 | 5 | NR | 525 | 483 | NR | 655 | 194 | NR | 785 | 4 | NR | 915 | 0 | NR |
| 400 | 7 | NR | 530 | 503 | NR | 660 | 168 | NR | 790 | 3 | NR | 920 | 0 | NR |
| 405 | 12 | NR | 535 | 519 | NR | 665 | 146 | NR | 795 | 3 | NR | 925 | 0 | NR |
| 410 | 21 | NR | 540 | 539 | NR | 670 | 126 | NR | 800 | 3 | NR | 930 | 0 | NR |
| 415 | 38 | NR | 545 | 561 | NR | 675 | 108 | NR | 805 | 2 | NR | 935 | 0 | NR |
| 420 | 68 | NR | 550 | 580 | NR | 680 | 93 | NR | 810 | 2 | NR | 940 | 0 | NR |
| 425 | 119 | NR | 555 | 602 | NR | 685 | 80 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 199 | NR | 560 | 624 | NR | 690 | 69 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 315 | NR | 565 | 641 | NR | 695 | 59 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 489 | NR | 570 | 657 | NR | 700 | 50 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 787 | NR | 575 | 663 | NR | 705 | 43 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 1000 | NR | 580 | 666 | NR | 710 | 36 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 757 | NR | 585 | 657 | NR | 715 | 31 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 503 | NR | 590 | 646 | NR | 720 | 27 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 398 | NR | 595 | 624 | NR | 725 | 23 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 290 | NR | 600 | 597 | NR | 730 | 20 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 222 | NR | 605 | 564 | NR | 735 | 17 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 215 | NR | 610 | 525 | NR | 740 | 14 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 228 | NR | 615 | 486 | NR | 745 | 12 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2501-332-5

## Scotopic Flux vs. Wavelength

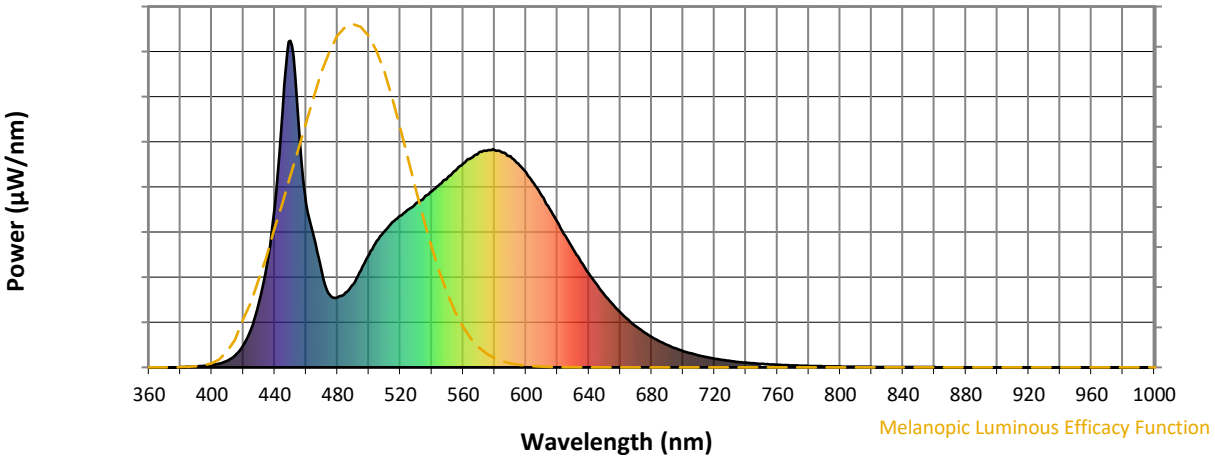



**Scotopic Lumens: NR** **S/P: 1.87**

| λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 0 | NR | 490 | 255 | NR | 620 | 445 | NR | 750 | 11 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 298 | NR | 625 | 403 | NR | 755 | 9 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 345 | NR | 630 | 362 | NR | 760 | 8 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 387 | NR | 635 | 323 | NR | 765 | 7 | NR | 895 | 0 | NR |
| 380 | 1 | NR | 510 | 417 | NR | 640 | 287 | NR | 770 | 6 | NR | 900 | 0 | NR |
| 385 | 2 | NR | 515 | 445 | NR | 645 | 254 | NR | 775 | 5 | NR | 905 | 0 | NR |
| 390 | 3 | NR | 520 | 464 | NR | 650 | 222 | NR | 780 | 4 | NR | 910 | 0 | NR |
| 395 | 5 | NR | 525 | 483 | NR | 655 | 194 | NR | 785 | 4 | NR | 915 | 0 | NR |
| 400 | 7 | NR | 530 | 503 | NR | 660 | 168 | NR | 790 | 3 | NR | 920 | 0 | NR |
| 405 | 12 | NR | 535 | 519 | NR | 665 | 146 | NR | 795 | 3 | NR | 925 | 0 | NR |
| 410 | 21 | NR | 540 | 539 | NR | 670 | 126 | NR | 800 | 3 | NR | 930 | 0 | NR |
| 415 | 38 | NR | 545 | 561 | NR | 675 | 108 | NR | 805 | 2 | NR | 935 | 0 | NR |
| 420 | 68 | NR | 550 | 580 | NR | 680 | 93 | NR | 810 | 2 | NR | 940 | 0 | NR |
| 425 | 119 | NR | 555 | 602 | NR | 685 | 80 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 199 | NR | 560 | 624 | NR | 690 | 69 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 315 | NR | 565 | 641 | NR | 695 | 59 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 489 | NR | 570 | 657 | NR | 700 | 50 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 787 | NR | 575 | 663 | NR | 705 | 43 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 1000 | NR | 580 | 666 | NR | 710 | 36 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 757 | NR | 585 | 657 | NR | 715 | 31 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 503 | NR | 590 | 646 | NR | 720 | 27 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 398 | NR | 595 | 624 | NR | 725 | 23 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 290 | NR | 600 | 597 | NR | 730 | 20 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 222 | NR | 605 | 564 | NR | 735 | 17 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 215 | NR | 610 | 525 | NR | 740 | 14 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 228 | NR | 615 | 486 | NR | 745 | 12 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2501-332-5

## Melanopic Flux vs. Wavelength




**Melanopic Lumens: NR** **M/P: 3.92**

| λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 0 | NR | 490 | 255 | NR | 620 | 445 | NR | 750 | 11 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 298 | NR | 625 | 403 | NR | 755 | 9 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 345 | NR | 630 | 362 | NR | 760 | 8 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 387 | NR | 635 | 323 | NR | 765 | 7 | NR | 895 | 0 | NR |
| 380 | 1 | NR | 510 | 417 | NR | 640 | 287 | NR | 770 | 6 | NR | 900 | 0 | NR |
| 385 | 2 | NR | 515 | 445 | NR | 645 | 254 | NR | 775 | 5 | NR | 905 | 0 | NR |
| 390 | 3 | NR | 520 | 464 | NR | 650 | 222 | NR | 780 | 4 | NR | 910 | 0 | NR |
| 395 | 5 | NR | 525 | 483 | NR | 655 | 194 | NR | 785 | 4 | NR | 915 | 0 | NR |
| 400 | 7 | NR | 530 | 503 | NR | 660 | 168 | NR | 790 | 3 | NR | 920 | 0 | NR |
| 405 | 12 | NR | 535 | 519 | NR | 665 | 146 | NR | 795 | 3 | NR | 925 | 0 | NR |
| 410 | 21 | NR | 540 | 539 | NR | 670 | 126 | NR | 800 | 3 | NR | 930 | 0 | NR |
| 415 | 38 | NR | 545 | 561 | NR | 675 | 108 | NR | 805 | 2 | NR | 935 | 0 | NR |
| 420 | 68 | NR | 550 | 580 | NR | 680 | 93 | NR | 810 | 2 | NR | 940 | 0 | NR |
| 425 | 119 | NR | 555 | 602 | NR | 685 | 80 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 199 | NR | 560 | 624 | NR | 690 | 69 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 315 | NR | 565 | 641 | NR | 695 | 59 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 489 | NR | 570 | 657 | NR | 700 | 50 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 787 | NR | 575 | 663 | NR | 705 | 43 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 1000 | NR | 580 | 666 | NR | 710 | 36 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 757 | NR | 585 | 657 | NR | 715 | 31 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 503 | NR | 590 | 646 | NR | 720 | 27 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 398 | NR | 595 | 624 | NR | 725 | 23 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 290 | NR | 600 | 597 | NR | 730 | 20 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 222 | NR | 605 | 564 | NR | 735 | 17 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 215 | NR | 610 | 525 | NR | 740 | 14 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 228 | NR | 615 | 486 | NR | 745 | 12 | NR | 875 | 0 | NR | | | |

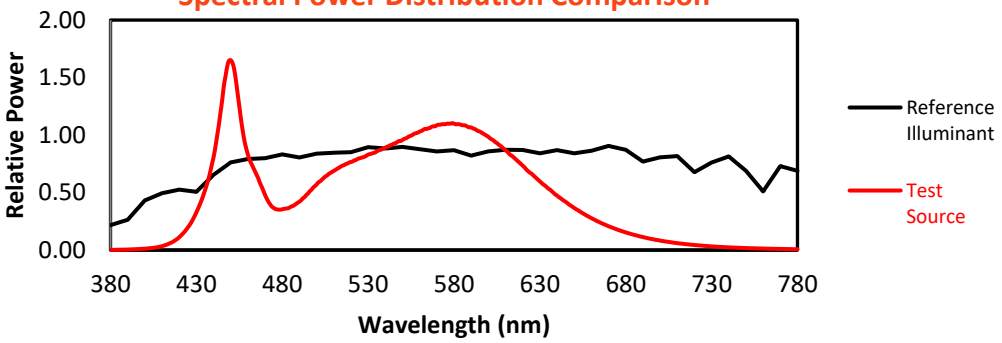
REPORT NUMBER: SP1-2501-332-5

# TM-30-18

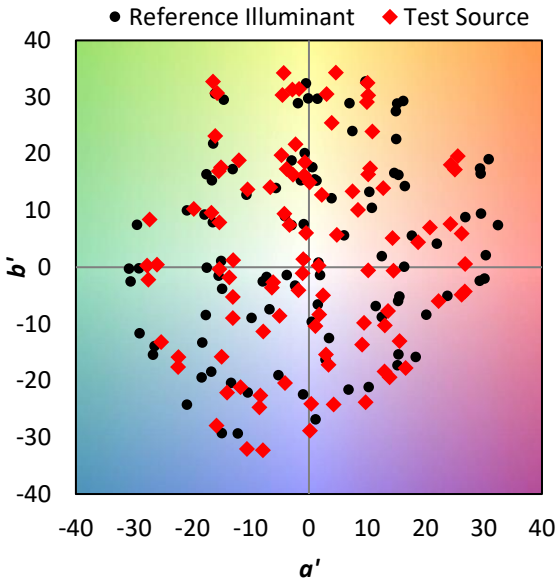
## Summary

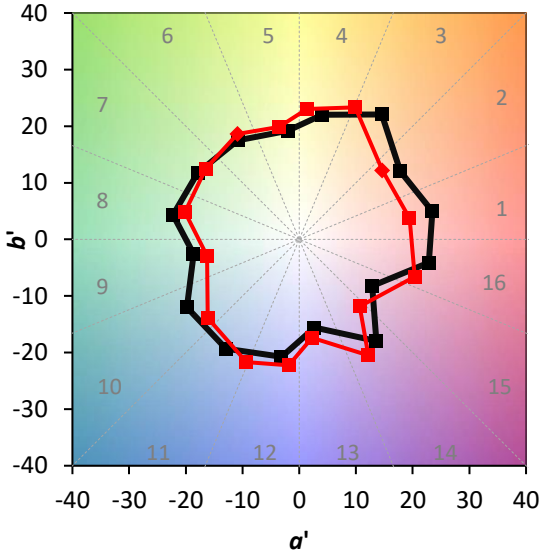
$R_f$ = 78.3
$R_g$ = 93.4
CIE $R_a$ = 75.8
$R_9$ = -30.4

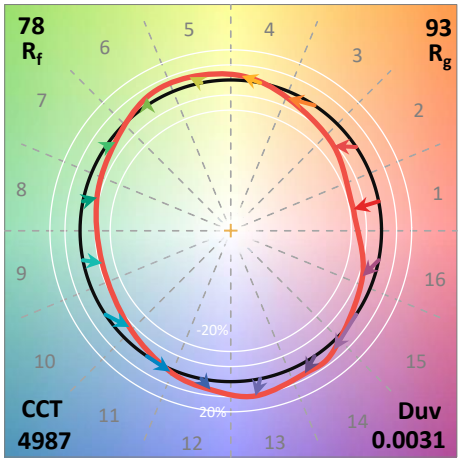
## Spectral Power Distribution Comparison

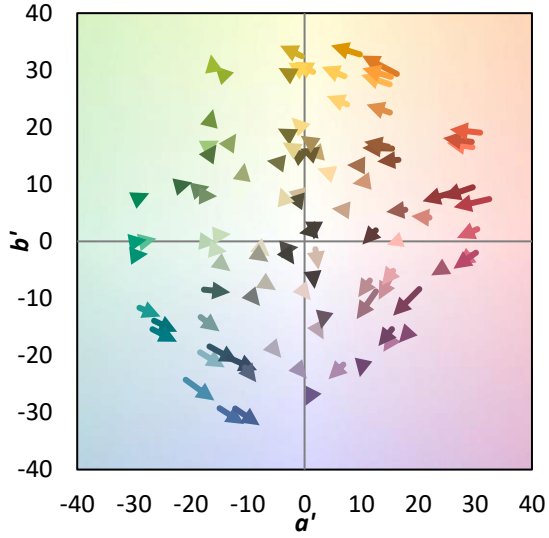



## Color Vector Graphics



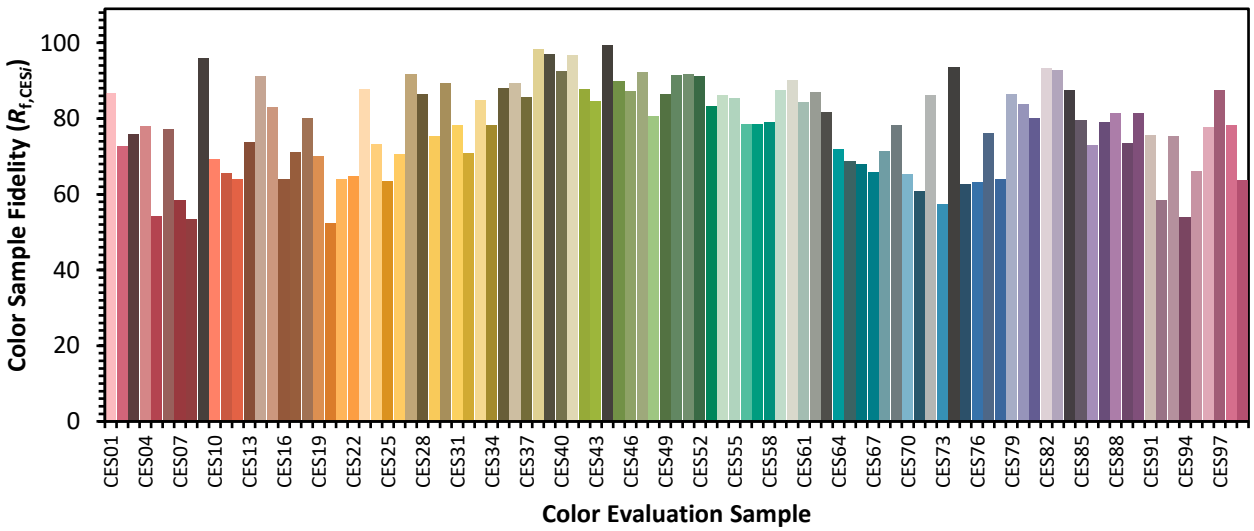



REPORT NUMBER: SP1-2501-332-5

# TM-30-18

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

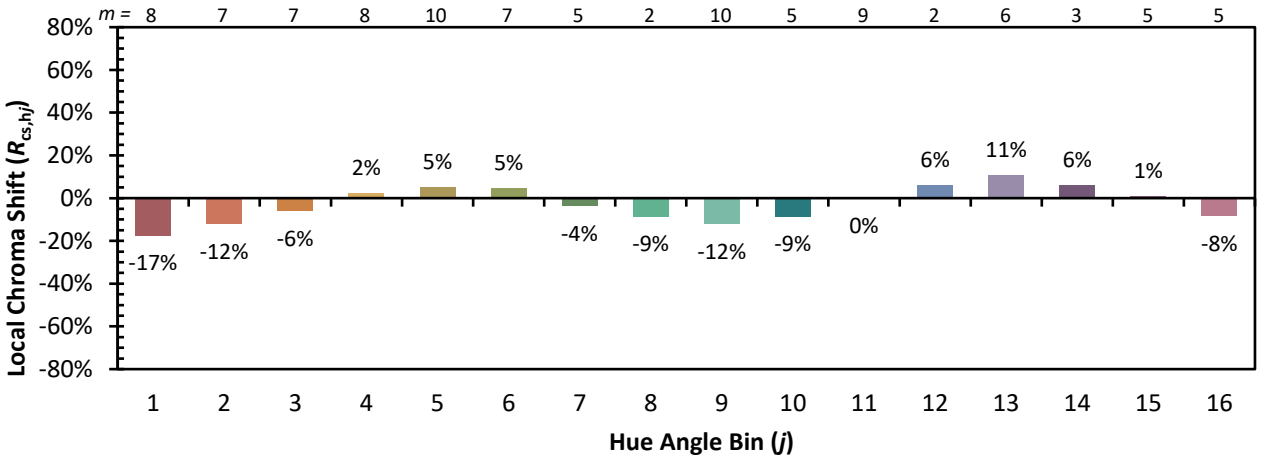
| | | | |
|---|---|---|---|
| CES01 = 85 | CES26 = 71 | CES51 = 92 | CES76 = 63 |
| CES02 = 60 | CES27 = 92 | CES52 = 91 | CES77 = 76 |
| CES03 = 30 | CES28 = 86 | CES53 = 83 | CES78 = 64 |
| CES04 = 69 | CES29 = 75 | CES54 = 86 | CES79 = 86 |
| CES05 = 46 | CES30 = 89 | CES55 = 85 | CES80 = 84 |
| CES06 = 50 | CES31 = 78 | CES56 = 79 | CES81 = 80 |
| CES07 = 39 | CES32 = 71 | CES57 = 78 | CES82 = 93 |
| CES08 = 38 | CES33 = 85 | CES58 = 79 | CES83 = 93 |
| CES09 = 29 | CES34 = 78 | CES59 = 88 | CES84 = 87 |
| CES10 = 73 | CES35 = 88 | CES60 = 90 | CES85 = 80 |
| CES11 = 56 | CES36 = 89 | CES61 = 84 | CES86 = 73 |
| CES12 = 61 | CES37 = 86 | CES62 = 87 | CES87 = 79 |
| CES13 = 41 | CES38 = 98 | CES63 = 82 | CES88 = 81 |
| CES14 = 74 | CES39 = 97 | CES64 = 72 | CES89 = 74 |
| CES15 = 70 | CES40 = 93 | CES65 = 69 | CES90 = 81 |
| CES16 = 46 | CES41 = 97 | CES66 = 68 | CES91 = 76 |
| CES17 = 49 | CES42 = 88 | CES67 = 66 | CES92 = 58 |
| CES18 = 55 | CES43 = 85 | CES68 = 71 | CES93 = 75 |
| CES19 = 71 | CES44 = 99 | CES69 = 78 | CES94 = 54 |
| CES20 = 64 | CES45 = 90 | CES70 = 65 | CES95 = 66 |
| CES21 = 85 | CES46 = 87 | CES71 = 61 | CES96 = 78 |
| CES22 = 77 | CES47 = 92 | CES72 = 86 | CES97 = 88 |
| CES23 = 91 | CES48 = 81 | CES73 = 57 | CES98 = 78 |
| CES24 = 90 | CES49 = 86 | CES74 = 93 | CES99 = 64 |
| CES25 = 71 | CES50 = 91 | CES75 = 63 | |

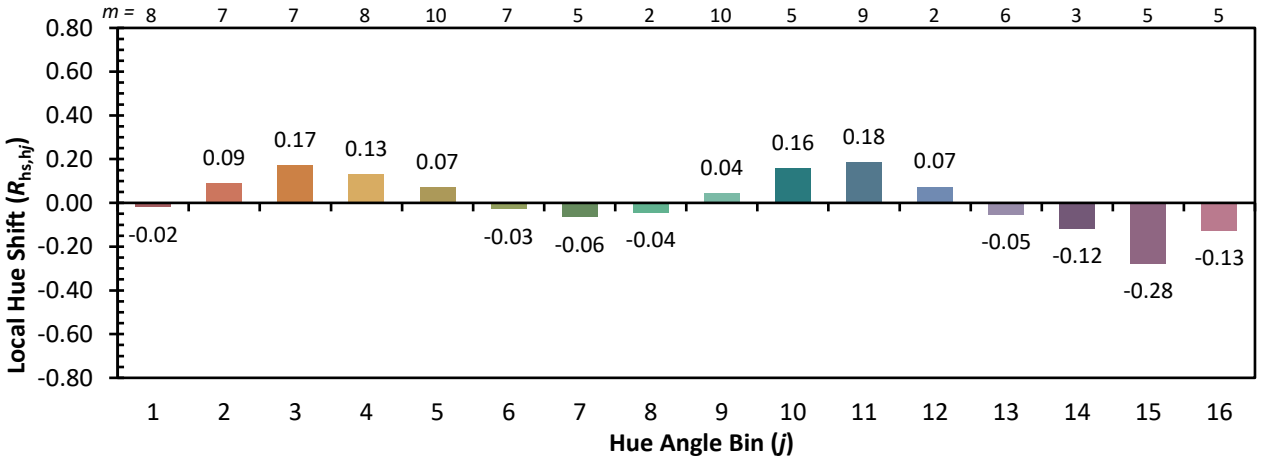


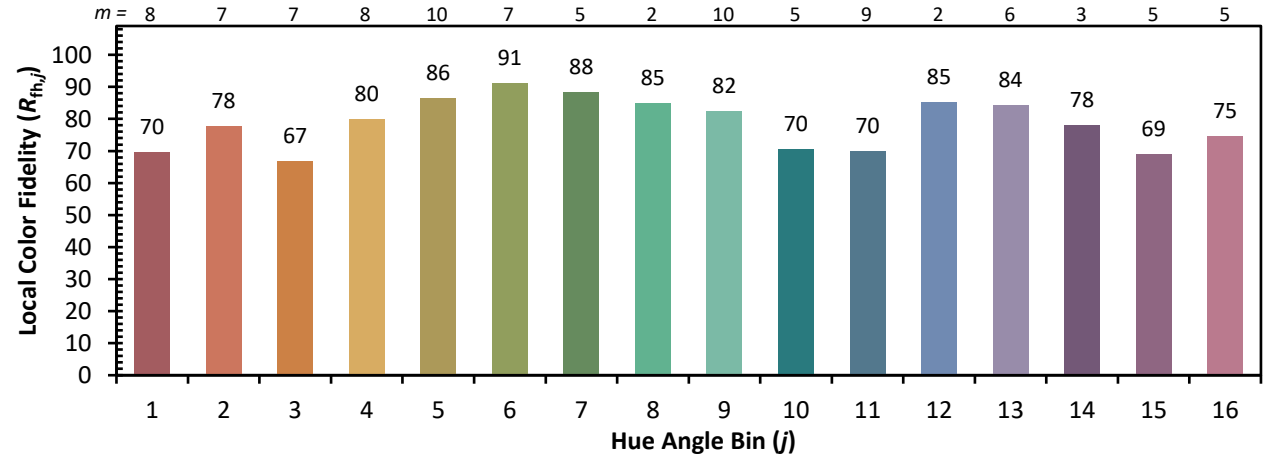
REPORT NUMBER: SP1-2501-332-5

# TM-30-18

## Color Rendition by Hue-Angle Bin



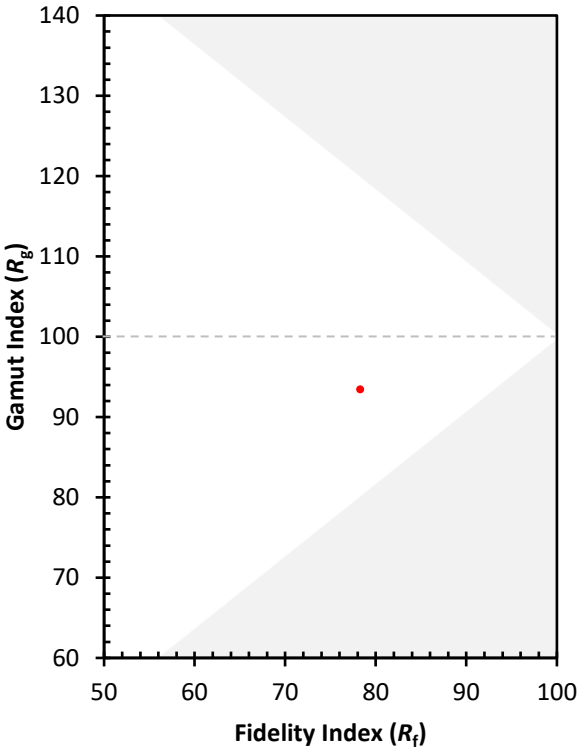



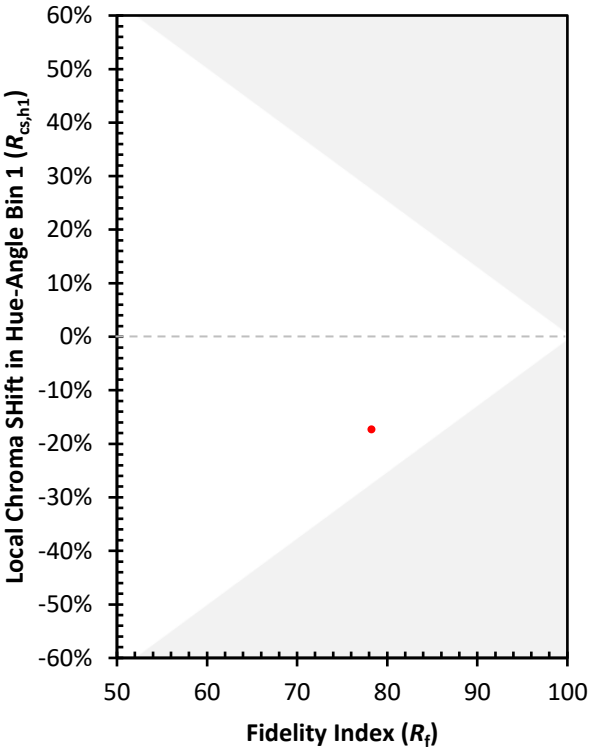



REPORT NUMBER: SP1-2501-332-5

# TM-30-18

## Measure Comparisons




(END OF REPORT)