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: McGRAW-EDISON

Report Number: P972407

Luminaire Tested: **GKO-PB2E-727-U-T1**

Issue Date: 02/27/2025

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: | P972407 |
| Test Lab: | INNOVATION CENTER(G1) |
| Issue Date: | 02/27/2025 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS (FORMERLY EATON) |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | GKO-PB2E-727-U-T1 |
| Description: | GEKKO WALL PACK 12000LM PACKAGE 70CRI 2700K FIXTURE w/ TYPE I DISTRIBUTION OPTIC |
| Light Source: | (20) 2700K CCT, 70 CRI LEDS |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 12390.8 lumens |
| Efficiency: | N/A |
| Efficacy: | 118.3 lumens/watt |
| Luminous Opening: | Rectangular (W 0.67' x L: 0.33' x H: 0') |
| IES Classification: | Type I - Short |
| BUG Rating: | B3 - U0 - G3 |

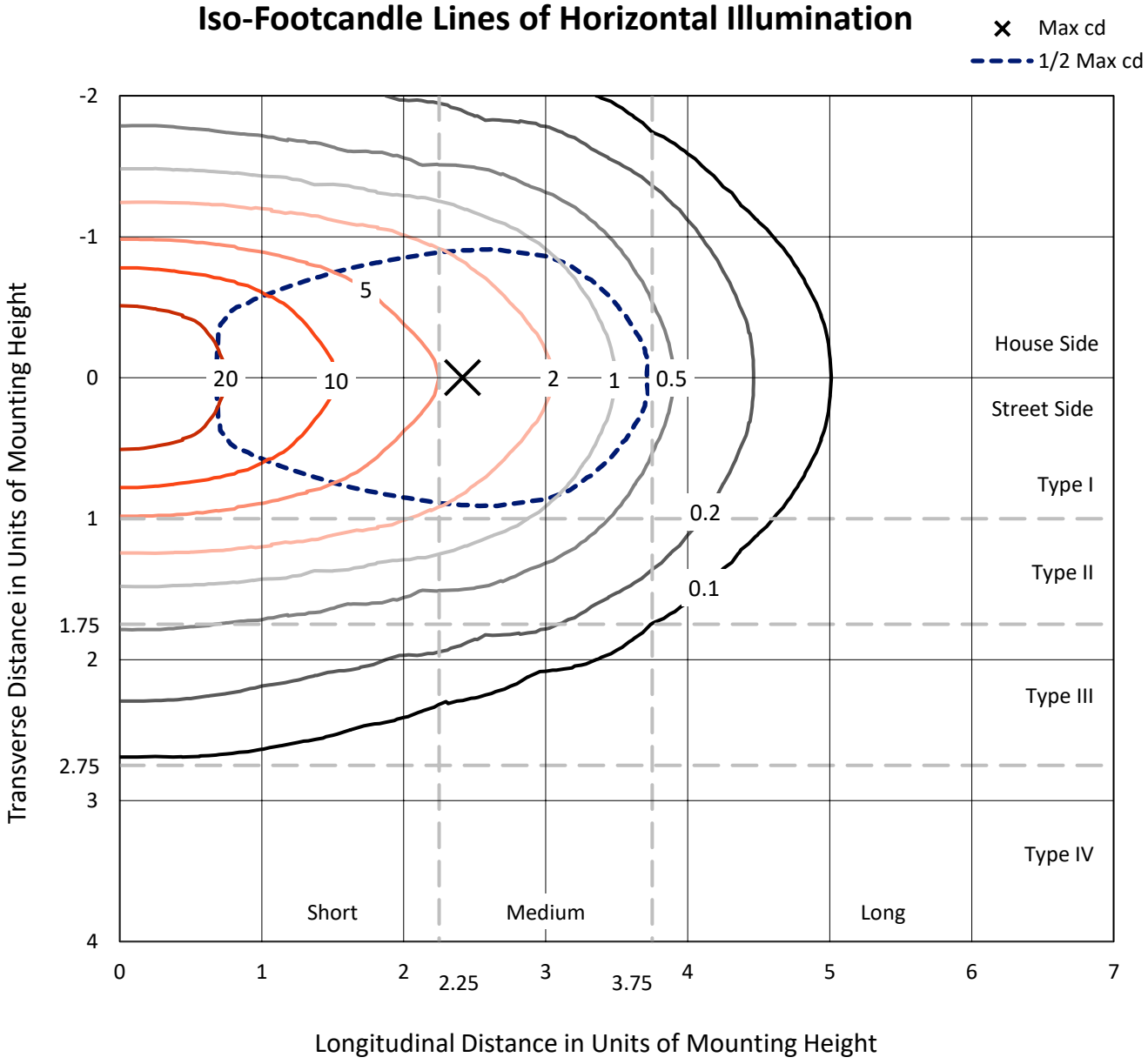
| | |
|---|---|
| Input Watts (W): | 104.7 |
| Input Voltage (V): | 120 |
| Input Current (Ain): | NR |
| Voltage Rise (V): | NR |
| Power Factor: | 0.97 |
| Total Harmonic Distortion (THDi): | 6% |
| Frequency (hertz): | 60 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 28.75 FT |

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

Scaled Data Report

REPORT NUMBER: P972407
CATALOG NUMBER: GKO-PB2E-727-U-T1

## Iso-Footcandle Lines of Horizontal Illumination



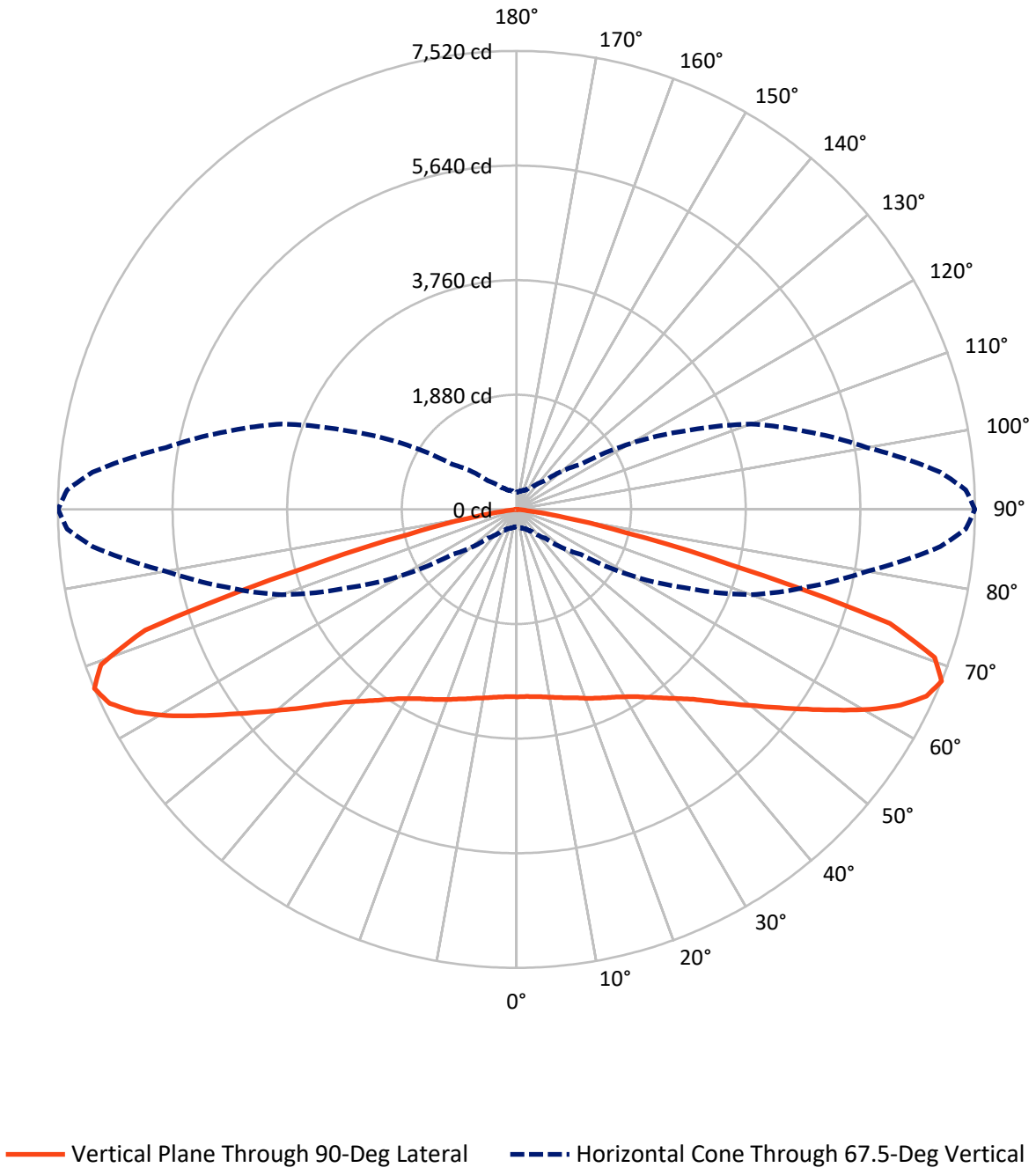

Based on 10 foot mounting height. Maximum calculated value = 30.7 fc
Type I - Short - N/A

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

Scaled Data Report

REPORT NUMBER: P972407
CATALOG NUMBER: GKO-PB2E-727-U-T1

## Luminous Intensity Polar Plot



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

Scaled Data Report

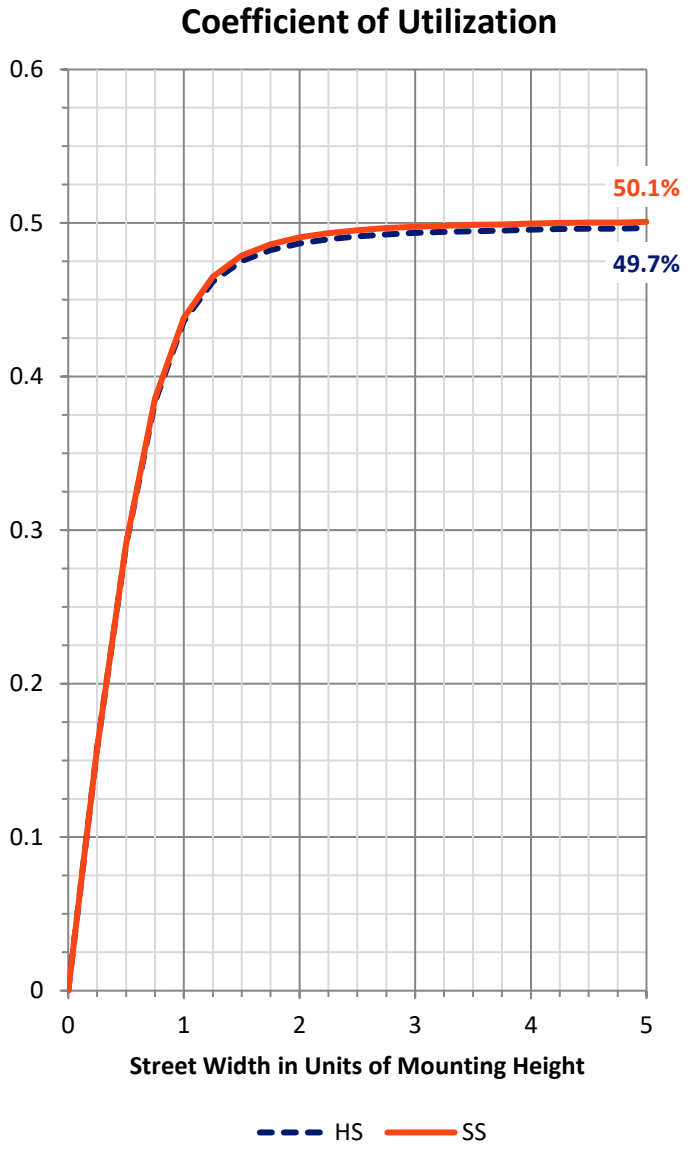
REPORT NUMBER: P972407
CATALOG NUMBER: GKO-PB2E-727-U-T1

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 6195.4 | 0.0 | 6195.4 |
| | % Fixture | 50.0 | 0.0 | 50.0 |
| **Street Side** | Lumens | 6195.4 | 0.0 | 6195.4 |
| | % Fixture | 50.0 | 0.0 | 50.0 |
| **Total** | Lumens | 12390.8 | 0.0 | 12390.8 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 294.9 | 2.4 |
| 10°-20° | 888.6 | 7.2 |
| 20°-30° | 1477.6 | 11.9 |
| 30°-40° | 1962.9 | 15.8 |
| 40°-50° | 2212.9 | 17.9 |
| 50°-60° | 2275.5 | 18.4 |
| 60°-70° | 2150.4 | 17.4 |
| 70°-80° | 1052.7 | 8.5 |
| 80°-90° | 75.3 | 0.6 |
| 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°-90° | 12390.8 | 100.0 |
| 0°-180° | 12390.8 | 100.0 |



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

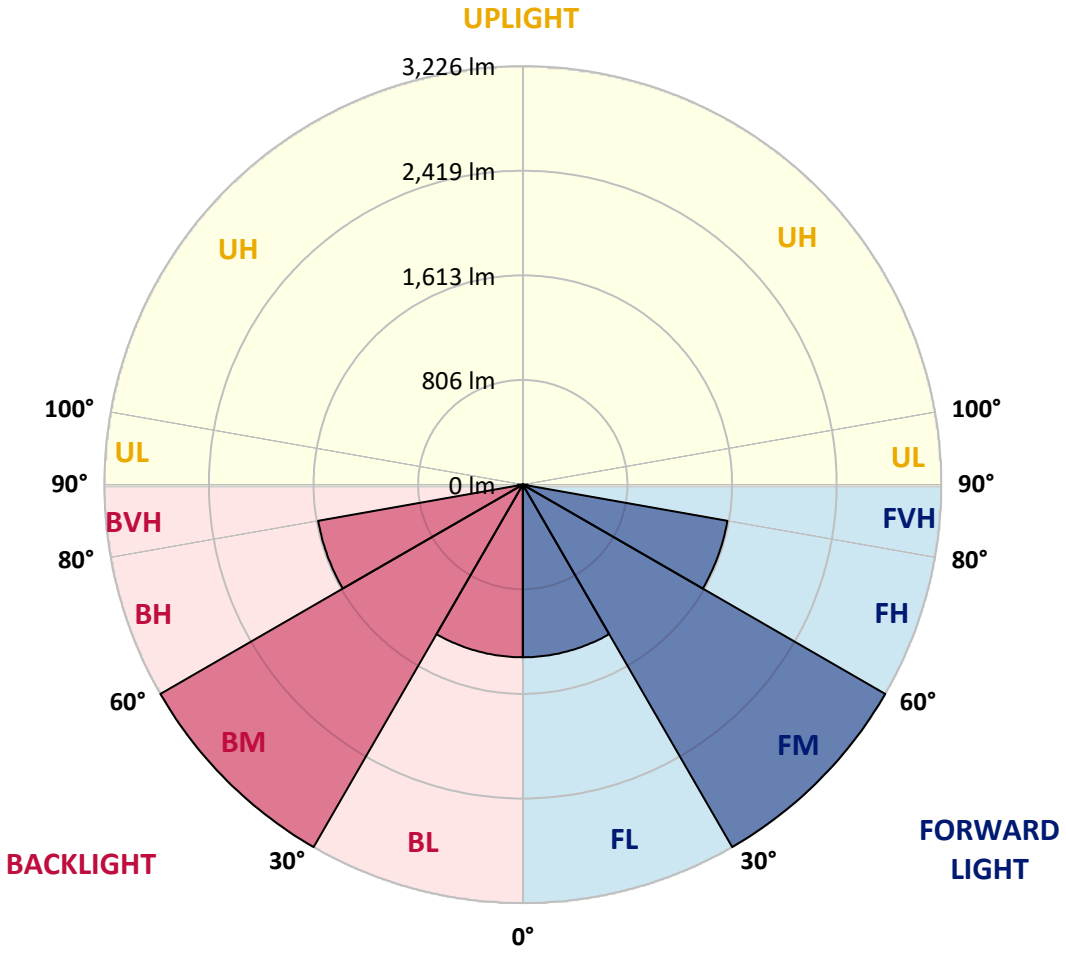
Scaled Data Report

REPORT NUMBER: P972407
CATALOG NUMBER: GKO-PB2E-727-U-T1

## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 1330.5 | 10.7 | | | |
| FM | (30°-60°) | 3225.7 | 26.0 | | | |
| FH | (60°-80°) | 1601.6 | 12.9 | | | G1/1800 |
| FVH | (80°-90°) | 37.6 | 0.3 | | | G1/100 |
| BL | (0°-30°) | 1330.5 | 10.7 | B3/2500 | | |
| BM | (30°-60°) | 3225.7 | 26.0 | B3/5000 | | |
| BH | (60°-80°) | 1601.6 | 12.9 | B3/2500 | | G3/2500 |
| BVH | (80°-90°) | 37.6 | 0.3 | | | G1/100 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

**BUG Rating: B3-U0-G3**
Type I Short



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

Scaled Data Report

REPORT NUMBER: P972407
CATALOG NUMBER: GKO-PB2E-727-U-T1

**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 70° | 75° | 80° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 3074.7 | 3074.7 | 3074.7 | 3074.7 | 3074.7 | 3074.7 | 3074.7 | 3074.7 | 3074.7 | 3074.7 | 3074.7 |
| 2.5° | 3077.0 | 3081.5 | 3072.4 | 3072.4 | 3077.0 | 3079.2 | 3079.2 | 3081.5 | 3077.0 | 3077.0 | 3074.7 |
| 5° | 3077.0 | 3079.2 | 3074.7 | 3074.7 | 3079.2 | 3086.1 | 3083.8 | 3088.4 | 3088.4 | 3086.1 | 3086.1 |
| 7.5° | 3074.7 | 3079.2 | 3074.7 | 3077.0 | 3083.8 | 3097.5 | 3097.5 | 3097.5 | 3102.1 | 3106.7 | 3106.7 |
| 10° | 3072.4 | 3077.0 | 3079.2 | 3081.5 | 3090.7 | 3111.2 | 3115.8 | 3118.1 | 3124.9 | 3131.8 | 3131.8 |
| 12.5° | 3061.0 | 3065.5 | 3072.4 | 3081.5 | 3097.5 | 3124.9 | 3134.1 | 3140.9 | 3152.3 | 3159.2 | 3163.8 |
| 15° | 3045.0 | 3047.3 | 3063.3 | 3081.5 | 3106.7 | 3140.9 | 3159.2 | 3170.6 | 3186.6 | 3195.7 | 3202.6 |
| 17.5° | 3022.1 | 3024.4 | 3049.6 | 3077.0 | 3113.5 | 3161.5 | 3191.2 | 3209.5 | 3225.4 | 3239.1 | 3248.3 |
| 20° | 2992.4 | 2999.3 | 3029.0 | 3072.4 | 3124.9 | 3182.0 | 3225.4 | 3257.4 | 3273.4 | 3287.1 | 3300.8 |
| 22.5° | 2955.9 | 2962.7 | 2999.3 | 3061.0 | 3136.4 | 3209.5 | 3266.6 | 3307.7 | 3328.2 | 3346.5 | 3362.5 |
| 25° | 2901.1 | 2910.2 | 2953.6 | 3033.6 | 3140.9 | 3239.1 | 3312.2 | 3364.8 | 3383.1 | 3405.9 | 3419.6 |
| 27.5° | 2816.6 | 2823.4 | 2875.9 | 2978.7 | 3127.2 | 3271.1 | 3364.8 | 3426.5 | 3447.0 | 3472.1 | 3485.9 |
| 30° | 2684.1 | 2697.8 | 2761.7 | 2889.6 | 3093.0 | 3296.3 | 3426.5 | 3488.1 | 3513.3 | 3538.4 | 3556.7 |
| 32.5° | 2512.7 | 2533.3 | 2604.1 | 2768.6 | 3026.7 | 3305.4 | 3492.7 | 3563.5 | 3595.5 | 3622.9 | 3645.8 |
| 35° | 2300.3 | 2320.9 | 2405.4 | 2613.2 | 2921.6 | 3287.1 | 3559.0 | 3650.3 | 3689.2 | 3725.7 | 3753.1 |
| 37.5° | 2058.2 | 2076.4 | 2179.2 | 2416.8 | 2770.9 | 3230.0 | 3611.5 | 3746.3 | 3798.8 | 3846.8 | 3883.3 |
| 40° | 1813.7 | 1834.3 | 1946.2 | 2199.8 | 2588.1 | 3120.4 | 3634.3 | 3851.3 | 3917.6 | 3979.3 | 4025.0 |
| 42.5° | 1548.8 | 1573.9 | 1699.5 | 1969.1 | 2375.7 | 2969.6 | 3616.1 | 3954.1 | 4036.4 | 4120.9 | 4189.4 |
| 45° | 1313.5 | 1318.0 | 1455.1 | 1715.5 | 2142.7 | 2775.4 | 3552.1 | 4052.4 | 4164.3 | 4283.1 | 4381.3 |
| 47.5° | 1087.3 | 1096.5 | 1215.3 | 1473.4 | 1900.5 | 2556.1 | 3435.6 | 4130.0 | 4308.2 | 4461.3 | 4605.2 |
| 50° | 886.3 | 897.7 | 1005.1 | 1235.8 | 1658.4 | 2316.3 | 3278.0 | 4175.7 | 4431.6 | 4639.4 | 4840.4 |
| 52.5° | 721.8 | 735.5 | 824.6 | 1027.9 | 1414.0 | 2065.0 | 3083.8 | 4182.6 | 4543.5 | 4817.6 | 5084.9 |
| 55° | 600.8 | 609.9 | 678.4 | 840.6 | 1178.7 | 1804.6 | 2862.2 | 4148.3 | 4616.6 | 4977.5 | 5333.9 |
| 57.5° | 507.1 | 516.3 | 564.2 | 692.1 | 966.3 | 1537.3 | 2592.7 | 4068.4 | 4655.4 | 5116.9 | 5585.1 |
| 60° | 440.9 | 447.7 | 482.0 | 573.4 | 794.9 | 1286.1 | 2302.6 | 3926.7 | 4644.0 | 5203.7 | 5793.0 |
| 62.5° | 392.9 | 395.2 | 424.9 | 488.8 | 655.6 | 1048.5 | 1975.9 | 3714.3 | 4550.3 | 5215.1 | 5934.6 |
| 65° | 349.5 | 351.8 | 370.1 | 415.7 | 539.1 | 842.9 | 1635.6 | 3421.9 | 4372.2 | 5135.1 | 5955.2 |
| 67.5° | *283.3* | *287.8* | *315.2* | *349.5* | *443.2* | *667.0* | *1288.3* | *3038.1* | *4093.5* | *4927.3* | *5838.7* |
| 70° | 226.1 | 228.4 | 255.8 | 294.7 | 360.9 | 525.4 | 989.1 | 2521.9 | 3657.2 | 4589.2 | 5537.2 |
| 72.5° | 169.0 | 173.6 | 198.7 | 237.6 | 294.7 | 406.6 | 715.0 | 1907.4 | 2923.9 | 3869.6 | 4822.2 |
| 75° | 134.8 | 137.1 | 146.2 | 182.7 | 228.4 | 308.4 | 482.0 | 1155.9 | 1761.2 | 2394.0 | 2955.9 |
| 77.5° | 114.2 | 116.5 | 116.5 | 141.6 | 169.0 | 207.9 | 255.8 | 459.1 | 744.7 | 1059.9 | 1404.8 |
| 80° | 93.7 | 98.2 | 89.1 | 105.1 | 121.1 | 121.1 | 118.8 | 219.3 | 351.8 | 498.0 | 653.3 |
| 82.5° | 68.5 | 73.1 | 68.5 | 73.1 | 73.1 | 66.2 | 61.7 | 82.2 | 111.9 | 153.0 | 166.8 |
| 85° | 48.0 | 50.3 | 54.8 | 50.3 | 48.0 | 38.8 | 29.7 | 22.8 | 13.7 | 16.0 | 22.8 |
| 87.5° | 32.0 | 38.8 | 45.7 | 43.4 | 36.5 | 29.7 | 20.6 | 13.7 | 6.9 | 9.1 | 9.1 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

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

Scaled Data Report

REPORT NUMBER: P972407
CATALOG NUMBER: GKO-PB2E-727-U-T1

**CANDELA DISTRIBUTION (continued):**

| | 85° | 87.5° | 90° |
|---|---|---|---|
| 0° | 3074.7 | 3074.7 | *3074.7* |
| 2.5° | 3077.0 | 3074.7 | *3072.4* |
| 5° | 3088.4 | 3086.1 | *3083.8* |
| 7.5° | 3104.4 | 3104.4 | *3104.4* |
| 10° | 3129.5 | 3134.1 | *3134.1* |
| 12.5° | 3161.5 | 3166.1 | *3166.1* |
| 15° | 3200.3 | 3202.6 | *3207.2* |
| 17.5° | 3248.3 | 3250.6 | *3250.6* |
| 20° | 3305.4 | 3303.1 | *3307.7* |
| 22.5° | 3362.5 | 3362.5 | *3362.5* |
| 25° | 3421.9 | 3421.9 | *3421.9* |
| 27.5° | 3490.4 | 3490.4 | *3485.9* |
| 30° | 3565.8 | 3565.8 | *3565.8* |
| 32.5° | 3657.2 | 3659.5 | *3661.7* |
| 35° | 3773.7 | 3778.2 | *3785.1* |
| 37.5° | 3906.2 | 3917.6 | *3924.4* |
| 40° | 4063.8 | 4068.4 | *4079.8* |
| 42.5° | 4239.7 | 4253.4 | *4255.7* |
| 45° | 4459.0 | 4481.8 | *4490.9* |
| 47.5° | 4717.1 | 4749.1 | *4765.1* |
| 50° | 5004.9 | 5041.5 | *5064.3* |
| 52.5° | 5317.9 | 5377.3 | *5404.7* |
| 55° | 5651.4 | 5754.2 | *5783.9* |
| 57.5° | 6028.3 | 6167.6 | *6208.7* |
| 60° | 6398.3 | 6594.8 | *6661.0* |
| 62.5° | 6713.6 | 6990.0 | *7072.2* |
| 65° | 6935.2 | 7268.7 | *7389.7* |
| 67.5° | *6980.8* | *7376.0* | *7519.9* |
| 70° | 6706.7 | 7111.1 | *7277.8* |
| 72.5° | 5831.8 | 6197.3 | *6405.2* |
| 75° | 3444.7 | 3707.4 | *3643.5* |
| 77.5° | 1729.2 | 1804.6 | *1816.0* |
| 80° | 758.4 | 804.1 | *822.4* |
| 82.5° | 187.3 | 191.9 | *217.0* |
| 85° | 25.1 | 29.7 | *27.4* |
| 87.5° | 9.1 | 9.1 | *11.4* |
| 90° | 0.0 | 0.0 | *0.0* |

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

McGraw-Edison

Report Number: SP2-2501-321-3

Test Date: 04/09/2025

Luminaire Tested: GKO-PB1E-727-U-T4W

Data in this report applies to families of products including GKO-PB1E-727-U-T4W

Report Generated By FNC07603 / LDUCLS01DT447
Version: v7.04

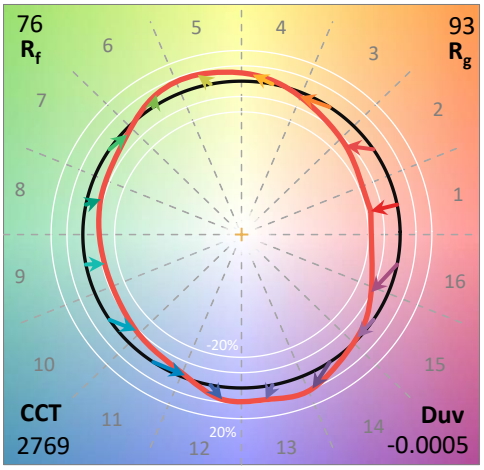
## Test Information

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | SP2-2501-321-3 |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Photometer: | SP2 - 165CM SPHERE |
| Measurement Geometry: | 4π |
| Issue Date: | 04/10/2025 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | McGraw-Edison |
| Catalog Number: | **GKO-PB1E-727-U-T4W** |
| Description: | Gekko Wedge Wall Pack Fixture 1 SQ w/ T4W distribution |

## Spectral Parameters

| | |
|---|---|
| CCT (K): | 2769 |
| CIE u': | 0.2596 |
| CIE v': | 0.5253 |
| Duv: | -0.0005 |
| CIE x: | 0.4535 |
| CIE y: | 0.4078 |
| CIE z: | 0.1387 |
| Peak Wavelength (nm): | 597 |
| Dominant Wavelength (nm): | 584 |
| Purity: | 58.54014 |
| Rf: | 75.7 |
| Rg: | 93.2 |

| | | | | | |
|---|---|---|---|---|---|
| CRI (Ra): | 71.7 | | | | |
| R1: | 68.0 | R9: | -34.5 | | |
| R2: | 84.0 | R10: | 64.3 | | |
| R3: | 94.6 | R11: | 60.9 | | |
| R4: | 65.9 | R12: | 54.4 | | |
| R5: | 67.3 | R13: | 71.2 | | |
| R6: | 78.7 | R14: | 97.6 | | |
| R7: | 75.2 | R15: | 59.5 | | |
| R8: | 39.8 | | | | |




## Test Conditions

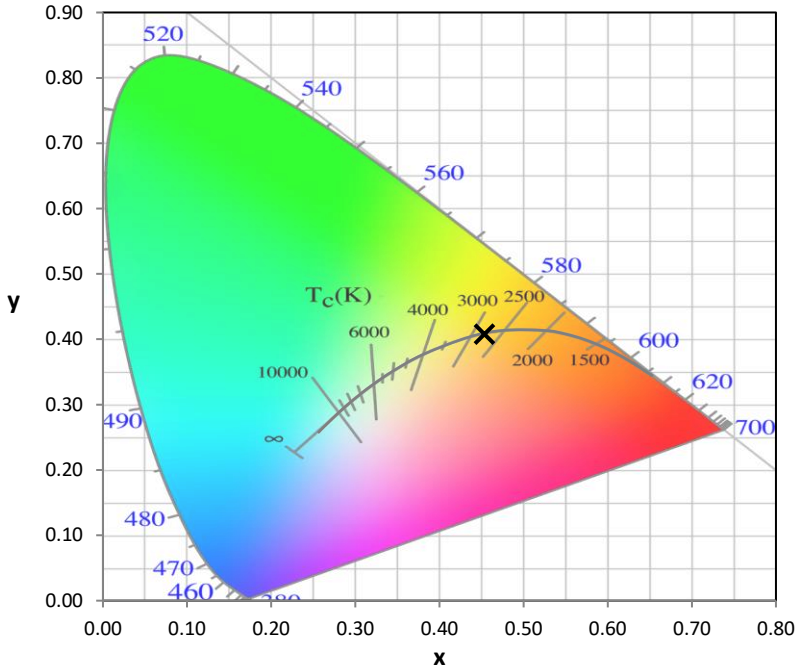
| | |
|---|---|
| Stabilization Time: | 36M |
| Operation Time: | 1H 36M |
| Sphere Temperature (°C): | 25.0 |

REPORT NUMBER: SP2-2501-321-3

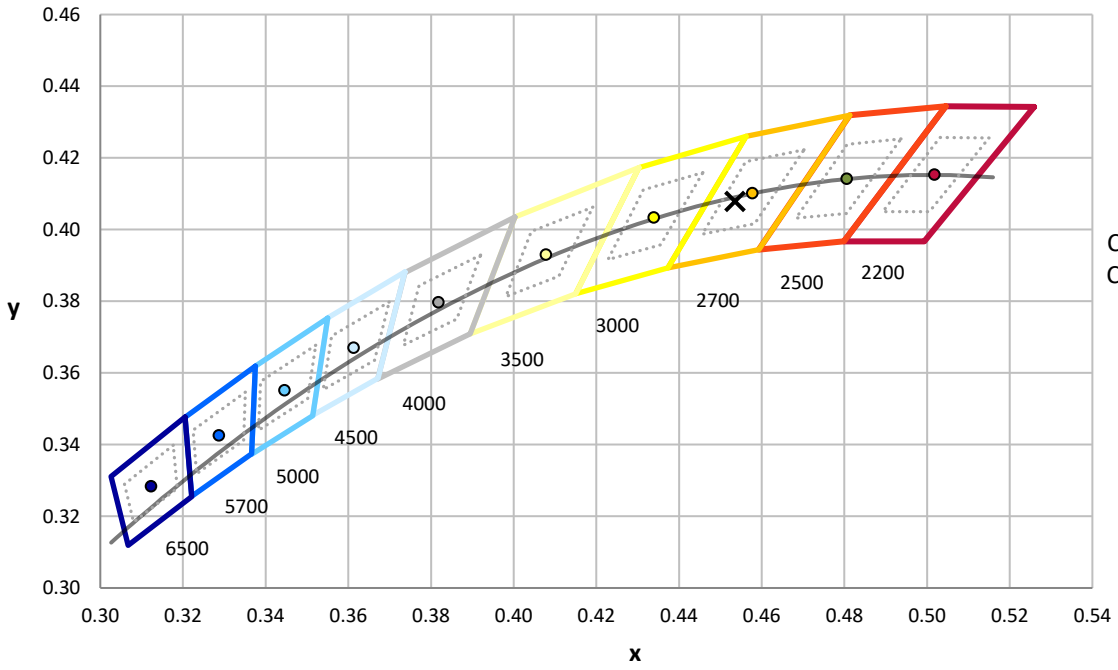
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN2187 | 1/6/2025 | 7/6/2025 |
| Power Meter | INXT2011002 | 1/21/2025 | 1/21/2026 |
| AC Power Source | IN0458 | 10/22/2024 | 10/22/2025 |
| DC Power Source | IN0212 | 10/22/2024 | 10/22/2025 |
| Sphere Thermometer | IN4036B | 10/22/2024 | 10/22/2025 |
| Room Thermometer | IN0046 | 10/22/2024 | 10/22/2025 |

REPORT NUMBER: SP2-2501-321-3

## CIE 1931 Chromaticity Diagram




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

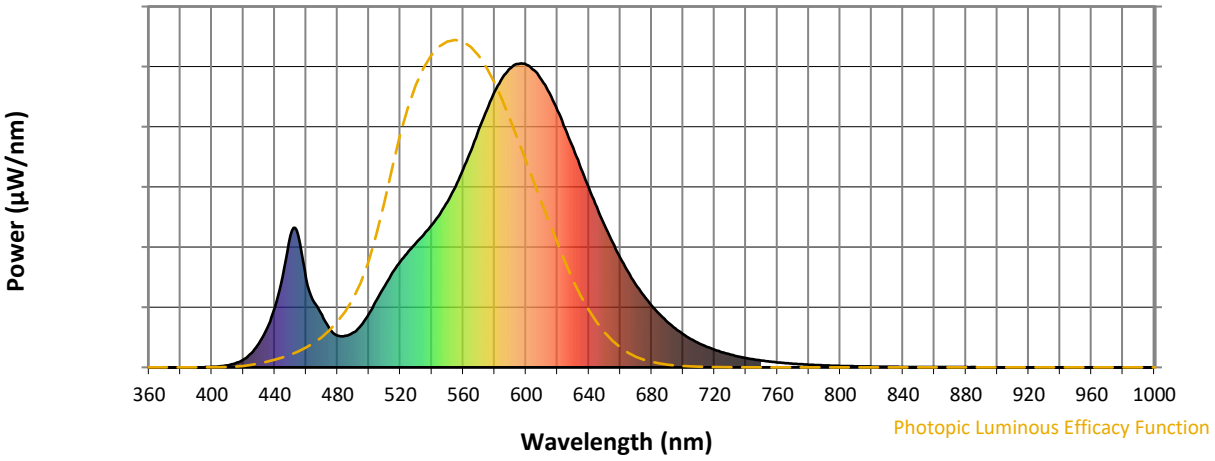



CCT = 2769K
CIE x = 0.4535
CIE y = 0.4078
Duv = -0.0005

Point lies inside the ANSI 2700K 4-step quadrangle

REPORT NUMBER: SP2-2501-321-3

## Photopic Flux vs. Wavelength

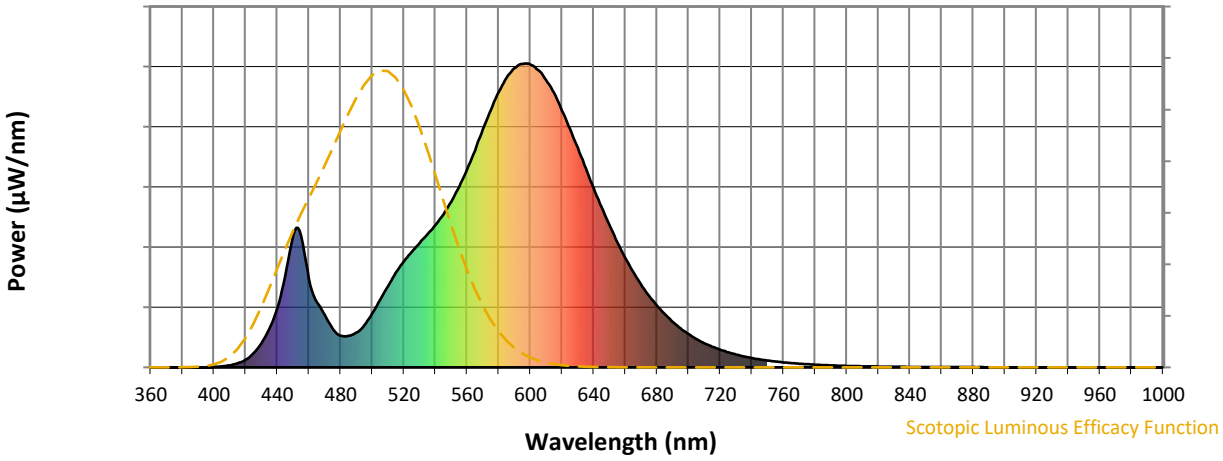



## Photopic Lumens: NR

| 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 | 114 | NR | 620 | 844 | NR | 750 | 22 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 138 | NR | 625 | 785 | NR | 755 | 19 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 176 | NR | 630 | 722 | NR | 760 | 16 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 222 | NR | 635 | 655 | NR | 765 | 14 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 268 | NR | 640 | 591 | NR | 770 | 12 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 311 | NR | 645 | 527 | NR | 775 | 10 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 348 | NR | 650 | 467 | NR | 780 | 9 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 381 | NR | 655 | 412 | NR | 785 | 8 | NR | 915 | 0 | NR |
| 400 | 2 | NR | 530 | 410 | NR | 660 | 360 | NR | 790 | 7 | NR | 920 | 0 | NR |
| 405 | 4 | NR | 535 | 438 | NR | 665 | 314 | NR | 795 | 6 | NR | 925 | 0 | NR |
| 410 | 7 | NR | 540 | 469 | NR | 670 | 272 | NR | 800 | 5 | NR | 930 | 0 | NR |
| 415 | 13 | NR | 545 | 503 | NR | 675 | 236 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 25 | NR | 550 | 544 | NR | 680 | 203 | NR | 810 | 4 | NR | 940 | 0 | NR |
| 425 | 46 | NR | 555 | 594 | NR | 685 | 175 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 79 | NR | 560 | 652 | NR | 690 | 149 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 128 | NR | 565 | 714 | NR | 695 | 128 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 196 | NR | 570 | 783 | NR | 700 | 109 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 299 | NR | 575 | 847 | NR | 705 | 93 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 433 | NR | 580 | 906 | NR | 710 | 80 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 433 | NR | 585 | 953 | NR | 715 | 68 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 293 | NR | 590 | 985 | NR | 720 | 58 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 215 | NR | 595 | 998 | NR | 725 | 50 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 173 | NR | 600 | 997 | NR | 730 | 42 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 127 | NR | 605 | 978 | NR | 735 | 36 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 104 | NR | 610 | 945 | NR | 740 | 30 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 104 | NR | 615 | 902 | NR | 745 | 26 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP2-2501-321-3

## Scotopic Flux vs. Wavelength

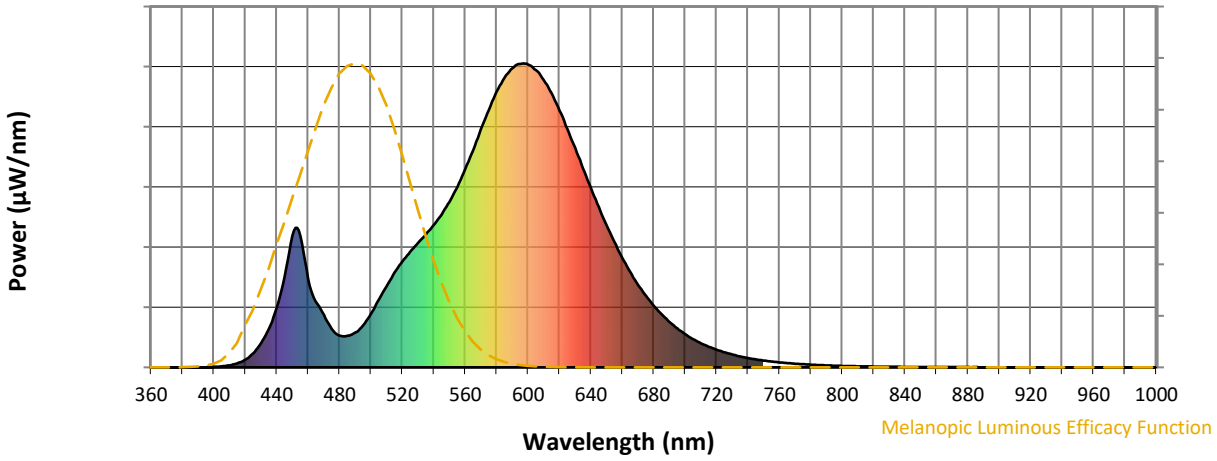



**Scotopic Lumens: NR** **S/P: 1.14**

| 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 | 114 | NR | 620 | 844 | NR | 750 | 22 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 138 | NR | 625 | 785 | NR | 755 | 19 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 176 | NR | 630 | 722 | NR | 760 | 16 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 222 | NR | 635 | 655 | NR | 765 | 14 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 268 | NR | 640 | 591 | NR | 770 | 12 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 311 | NR | 645 | 527 | NR | 775 | 10 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 348 | NR | 650 | 467 | NR | 780 | 9 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 381 | NR | 655 | 412 | NR | 785 | 8 | NR | 915 | 0 | NR |
| 400 | 2 | NR | 530 | 410 | NR | 660 | 360 | NR | 790 | 7 | NR | 920 | 0 | NR |
| 405 | 4 | NR | 535 | 438 | NR | 665 | 314 | NR | 795 | 6 | NR | 925 | 0 | NR |
| 410 | 7 | NR | 540 | 469 | NR | 670 | 272 | NR | 800 | 5 | NR | 930 | 0 | NR |
| 415 | 13 | NR | 545 | 503 | NR | 675 | 236 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 25 | NR | 550 | 544 | NR | 680 | 203 | NR | 810 | 4 | NR | 940 | 0 | NR |
| 425 | 46 | NR | 555 | 594 | NR | 685 | 175 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 79 | NR | 560 | 652 | NR | 690 | 149 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 128 | NR | 565 | 714 | NR | 695 | 128 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 196 | NR | 570 | 783 | NR | 700 | 109 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 299 | NR | 575 | 847 | NR | 705 | 93 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 433 | NR | 580 | 906 | NR | 710 | 80 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 433 | NR | 585 | 953 | NR | 715 | 68 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 293 | NR | 590 | 985 | NR | 720 | 58 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 215 | NR | 595 | 998 | NR | 725 | 50 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 173 | NR | 600 | 997 | NR | 730 | 42 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 127 | NR | 605 | 978 | NR | 735 | 36 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 104 | NR | 610 | 945 | NR | 740 | 30 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 104 | NR | 615 | 902 | NR | 745 | 26 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP2-2501-321-3

## Melanopic Flux vs. Wavelength




**Melanopic Lumens: NR** **M/P: 2.08**

| 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 | 114 | NR | 620 | 844 | NR | 750 | 22 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 138 | NR | 625 | 785 | NR | 755 | 19 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 176 | NR | 630 | 722 | NR | 760 | 16 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 222 | NR | 635 | 655 | NR | 765 | 14 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 268 | NR | 640 | 591 | NR | 770 | 12 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 311 | NR | 645 | 527 | NR | 775 | 10 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 348 | NR | 650 | 467 | NR | 780 | 9 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 381 | NR | 655 | 412 | NR | 785 | 8 | NR | 915 | 0 | NR |
| 400 | 2 | NR | 530 | 410 | NR | 660 | 360 | NR | 790 | 7 | NR | 920 | 0 | NR |
| 405 | 4 | NR | 535 | 438 | NR | 665 | 314 | NR | 795 | 6 | NR | 925 | 0 | NR |
| 410 | 7 | NR | 540 | 469 | NR | 670 | 272 | NR | 800 | 5 | NR | 930 | 0 | NR |
| 415 | 13 | NR | 545 | 503 | NR | 675 | 236 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 25 | NR | 550 | 544 | NR | 680 | 203 | NR | 810 | 4 | NR | 940 | 0 | NR |
| 425 | 46 | NR | 555 | 594 | NR | 685 | 175 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 79 | NR | 560 | 652 | NR | 690 | 149 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 128 | NR | 565 | 714 | NR | 695 | 128 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 196 | NR | 570 | 783 | NR | 700 | 109 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 299 | NR | 575 | 847 | NR | 705 | 93 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 433 | NR | 580 | 906 | NR | 710 | 80 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 433 | NR | 585 | 953 | NR | 715 | 68 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 293 | NR | 590 | 985 | NR | 720 | 58 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 215 | NR | 595 | 998 | NR | 725 | 50 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 173 | NR | 600 | 997 | NR | 730 | 42 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 127 | NR | 605 | 978 | NR | 735 | 36 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 104 | NR | 610 | 945 | NR | 740 | 30 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 104 | NR | 615 | 902 | NR | 745 | 26 | NR | 875 | 1 | NR | | | |

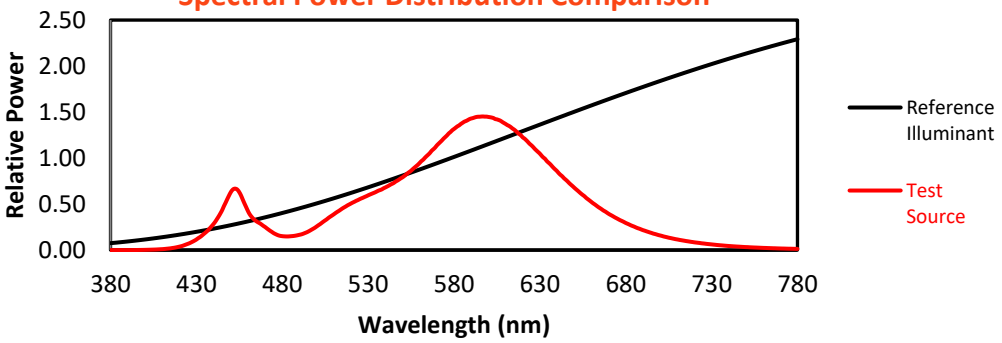
REPORT NUMBER: SP2-2501-321-3

# TM-30-18

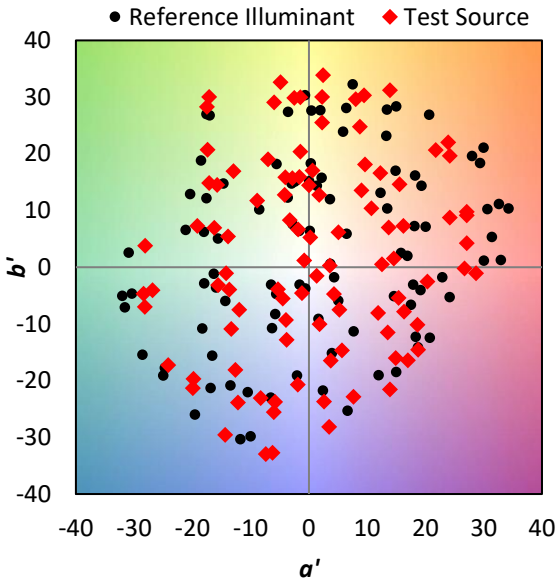
## Summary

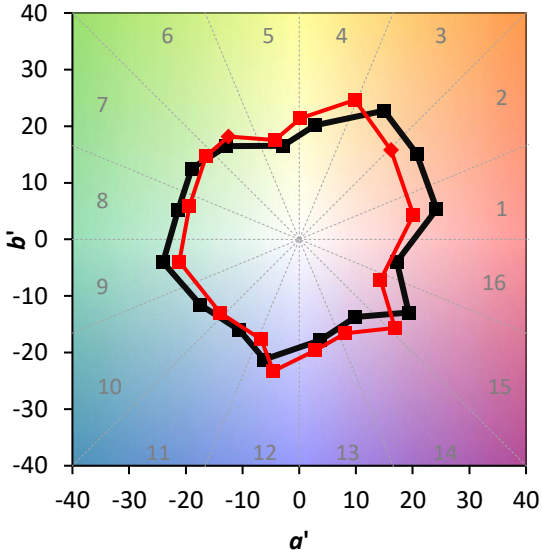
$R_f$ = 75.7
$R_g$ = 93.2
CIE $R_a$ = 71.7
$R_9$ = -34.5

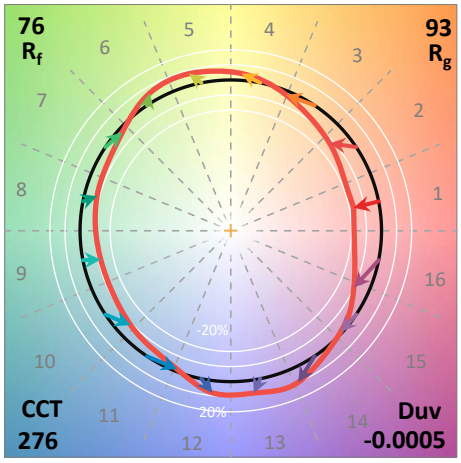
## Spectral Power Distribution Comparison

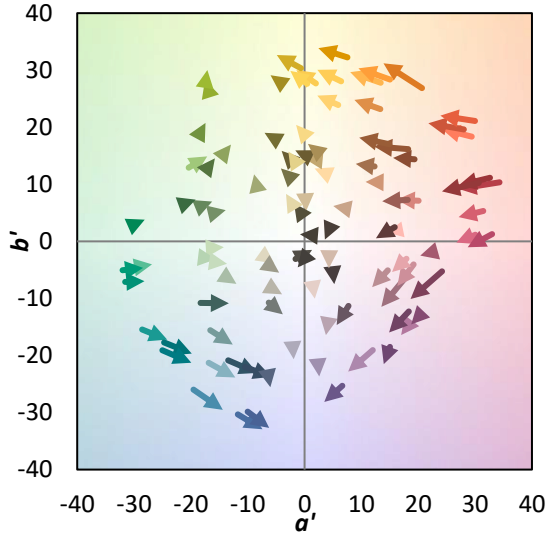



## Color Vector Graphics



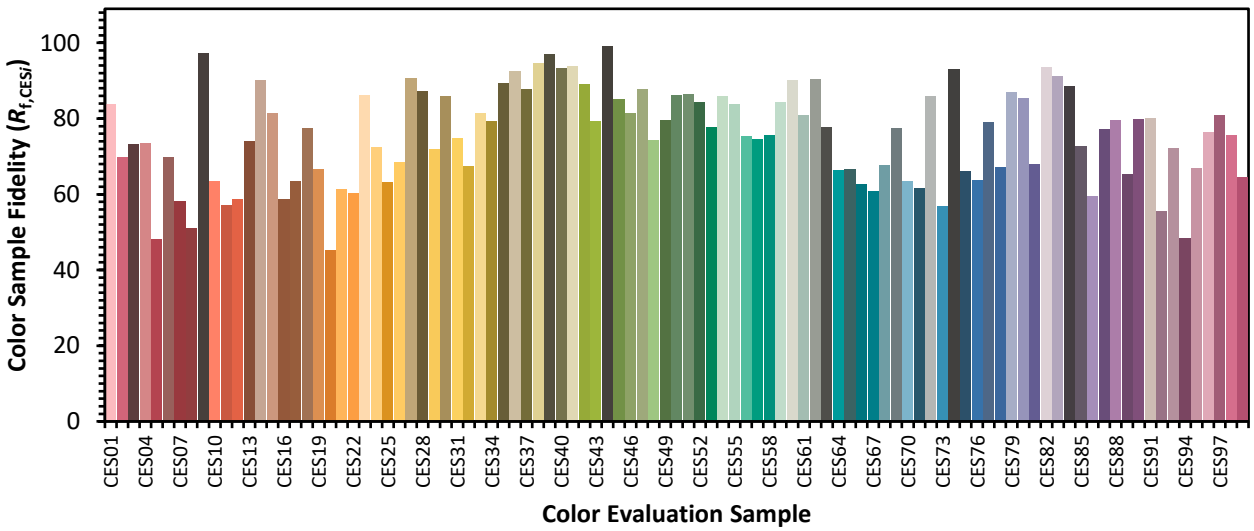



REPORT NUMBER: SP2-2501-321-3

# TM-30-18

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

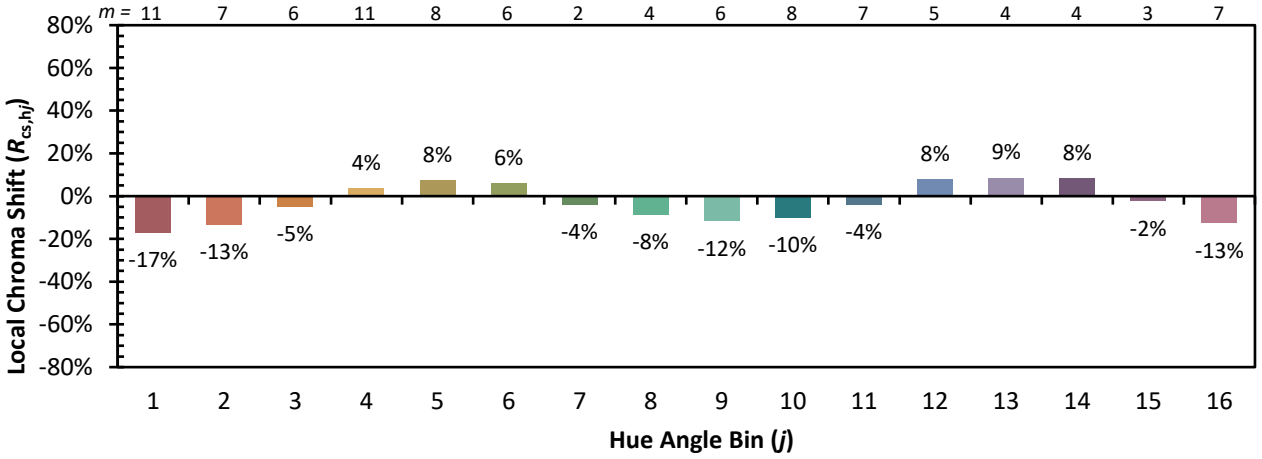
| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 68 | CES51 = 87 | CES76 = 64 |
| CES02 = 63 | CES27 = 91 | CES52 = 84 | CES77 = 79 |
| CES03 = 31 | CES28 = 87 | CES53 = 78 | CES78 = 67 |
| CES04 = 71 | CES29 = 72 | CES54 = 86 | CES79 = 87 |
| CES05 = 50 | CES30 = 86 | CES55 = 84 | CES80 = 85 |
| CES06 = 52 | CES31 = 75 | CES56 = 75 | CES81 = 68 |
| CES07 = 42 | CES32 = 67 | CES57 = 74 | CES82 = 94 |
| CES08 = 41 | CES33 = 81 | CES58 = 76 | CES83 = 91 |
| CES09 = 29 | CES34 = 79 | CES59 = 84 | CES84 = 89 |
| CES10 = 77 | CES35 = 89 | CES60 = 90 | CES85 = 73 |
| CES11 = 60 | CES36 = 92 | CES61 = 81 | CES86 = 59 |
| CES12 = 66 | CES37 = 88 | CES62 = 90 | CES87 = 77 |
| CES13 = 43 | CES38 = 95 | CES63 = 78 | CES88 = 79 |
| CES14 = 74 | CES39 = 97 | CES64 = 66 | CES89 = 65 |
| CES15 = 72 | CES40 = 93 | CES65 = 67 | CES90 = 80 |
| CES16 = 48 | CES41 = 94 | CES66 = 63 | CES91 = 80 |
| CES17 = 50 | CES42 = 89 | CES67 = 61 | CES92 = 55 |
| CES18 = 57 | CES43 = 79 | CES68 = 68 | CES93 = 72 |
| CES19 = 73 | CES44 = 99 | CES69 = 77 | CES94 = 48 |
| CES20 = 67 | CES45 = 85 | CES70 = 63 | CES95 = 67 |
| CES21 = 87 | CES46 = 81 | CES71 = 62 | CES96 = 76 |
| CES22 = 80 | CES47 = 88 | CES72 = 86 | CES97 = 81 |
| CES23 = 92 | CES48 = 74 | CES73 = 57 | CES98 = 76 |
| CES24 = 91 | CES49 = 80 | CES74 = 93 | CES99 = 64 |
| CES25 = 73 | CES50 = 86 | CES75 = 66 | |

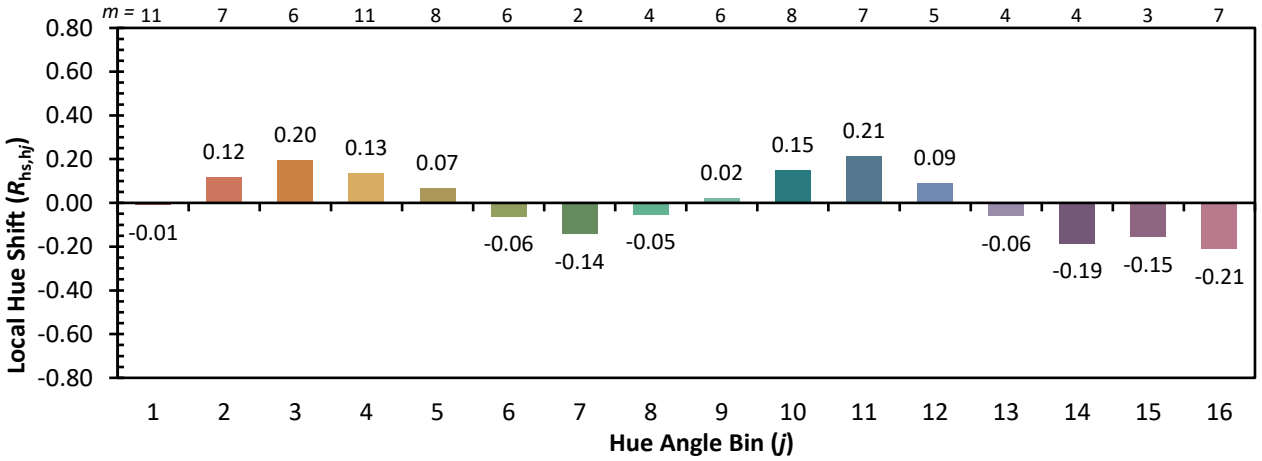


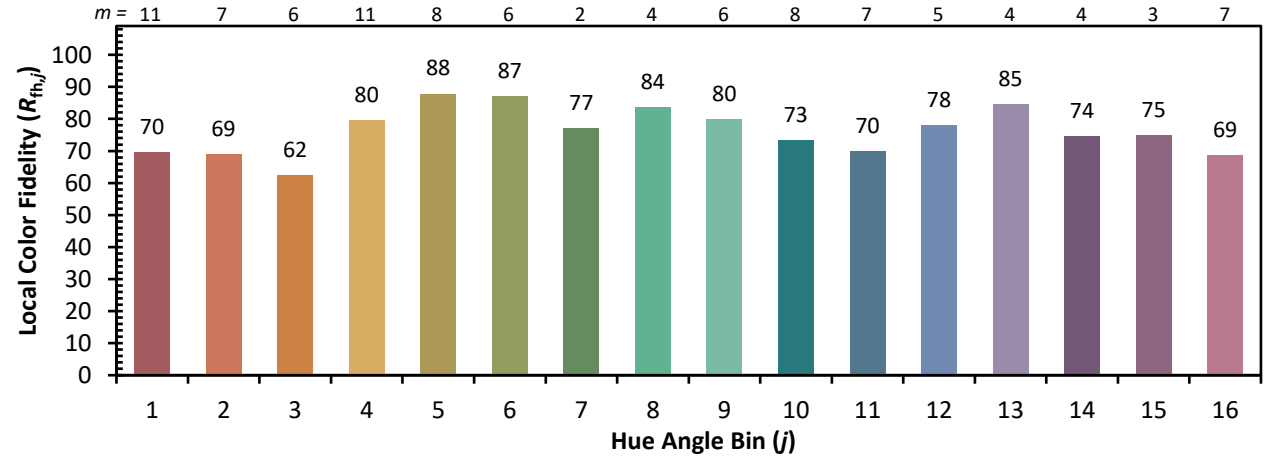
REPORT NUMBER: SP2-2501-321-3

**TM-30-18**

## Color Rendition by Hue-Angle Bin



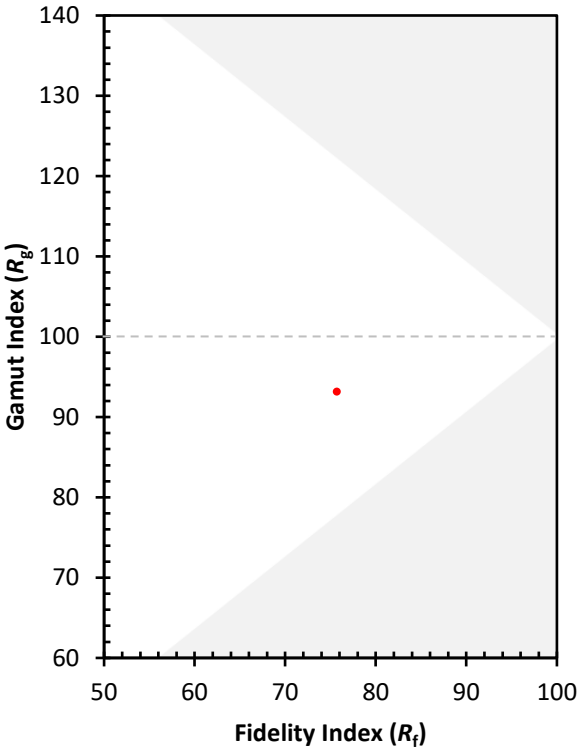



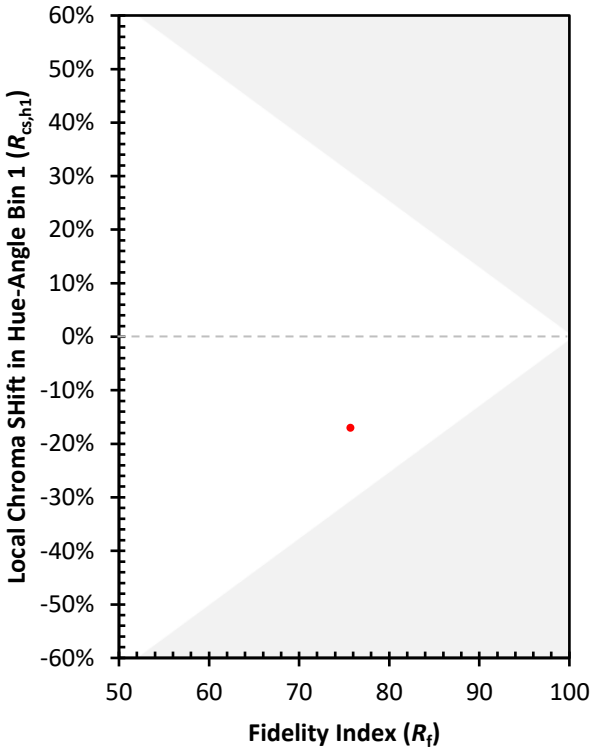



REPORT NUMBER: SP2-2501-321-3

# TM-30-18

## Measure Comparisons




(END OF REPORT)