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: P972215

Luminaire Tested: **GKO-PB1B-730-U-T4W**

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: | P972215 |
| Test Lab: | INNOVATION CENTER(G1) |
| Issue Date: | 02/27/2025 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS (FORMERLY EATON) |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | GKO-PB1B-730-U-T4W |
| Description: | GEKKO WALL PACK 1500LM PACKAGE 70CRI 3000K FIXTURE w/ TYPE IV WIDE DISTRIBUTION OPTIC |
| Light Source: | (10) 3000K CCT, 70 CRI LEDS |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 1363 lumens |
| Efficiency: | N/A |
| Efficacy: | 146.6 lumens/watt |
| Luminous Opening: | Rectangular (W 0.33' x L: 0.33' x H: 0') |
| IES Classification: | Type IV - Short |
| BUG Rating: | B0 - U0 - G1 |

| | |
|---|---|
| Input Watts (W): | 9.3 |
| Input Voltage (V): | 120 |
| Input Current (Ain): | NR |
| Voltage Rise (V): | NR |
| Power Factor: | 0.97 |
| Total Harmonic Distortion (THDi): | 14% |
| Frequency (hertz): | 60 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 28.75 FT |

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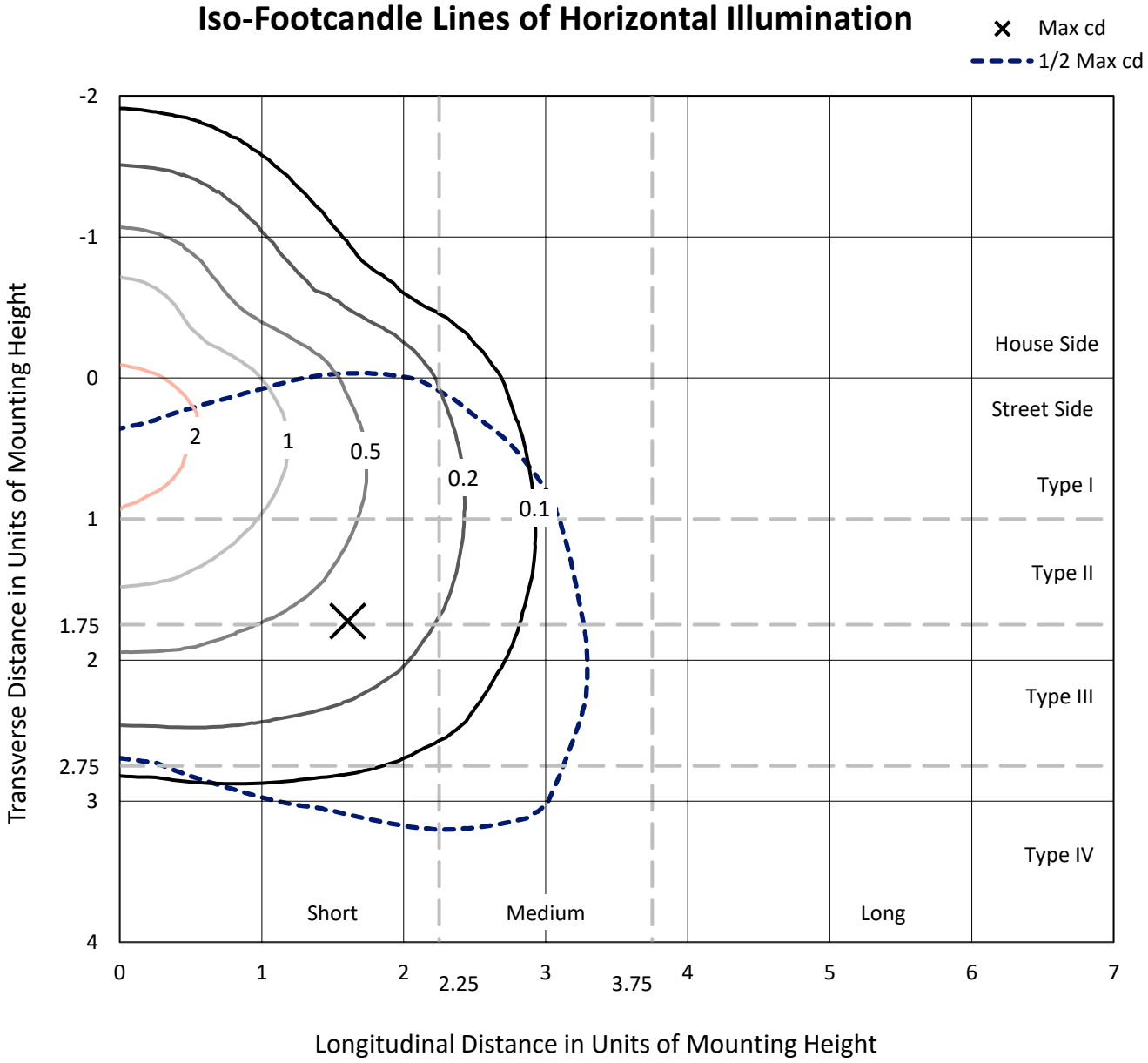
Scaled Data Report

REPORT NUMBER: P972215
CATALOG NUMBER: GKO-PB1B-730-U-T4W

## Iso-Footcandle Lines of Horizontal Illumination




Based on 10 foot mounting height. Maximum calculated value = 2.6 fc
Type IV - Short - N/A

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REPORT NUMBER: P972215
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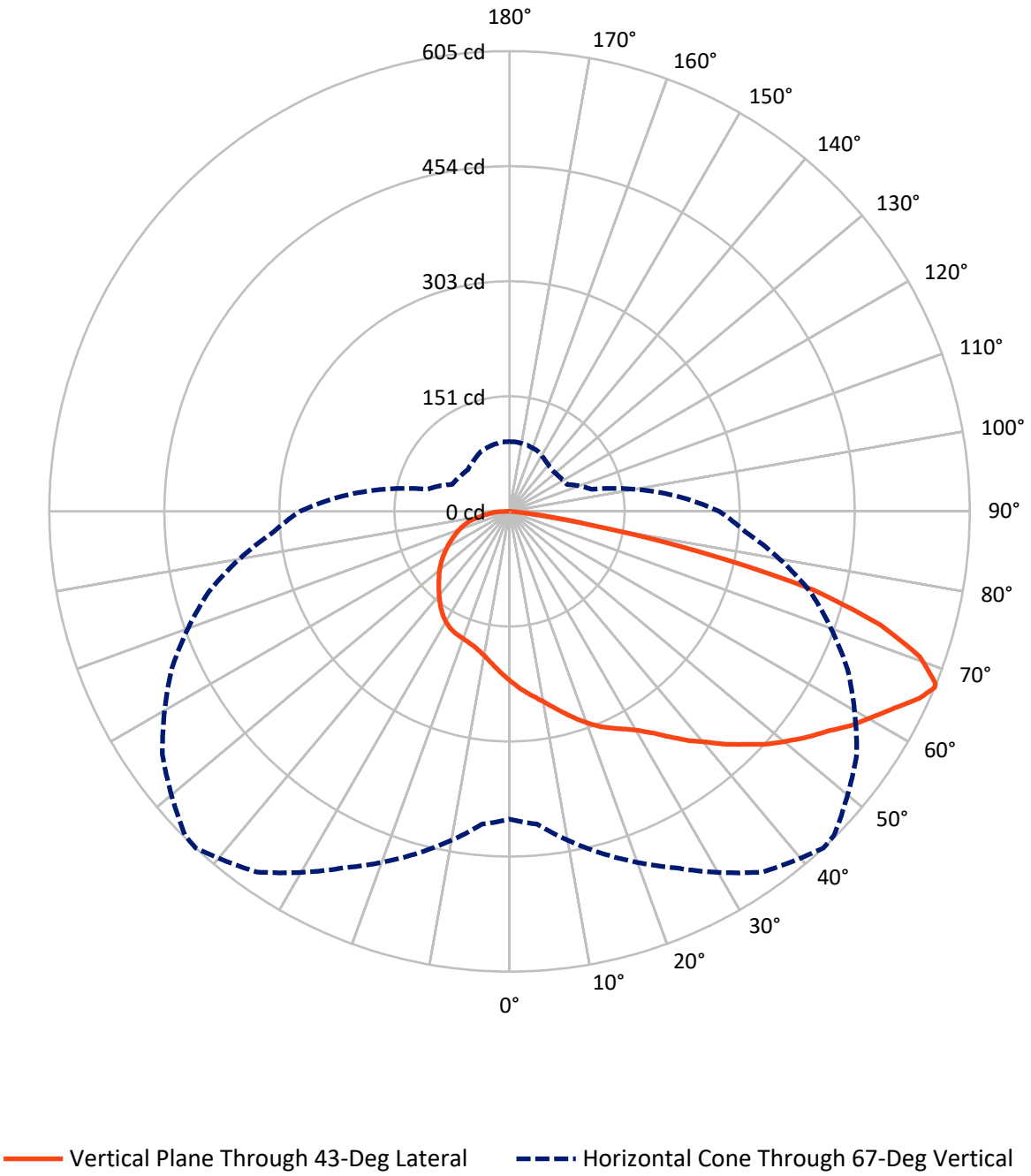
## Luminous Intensity Polar Plot



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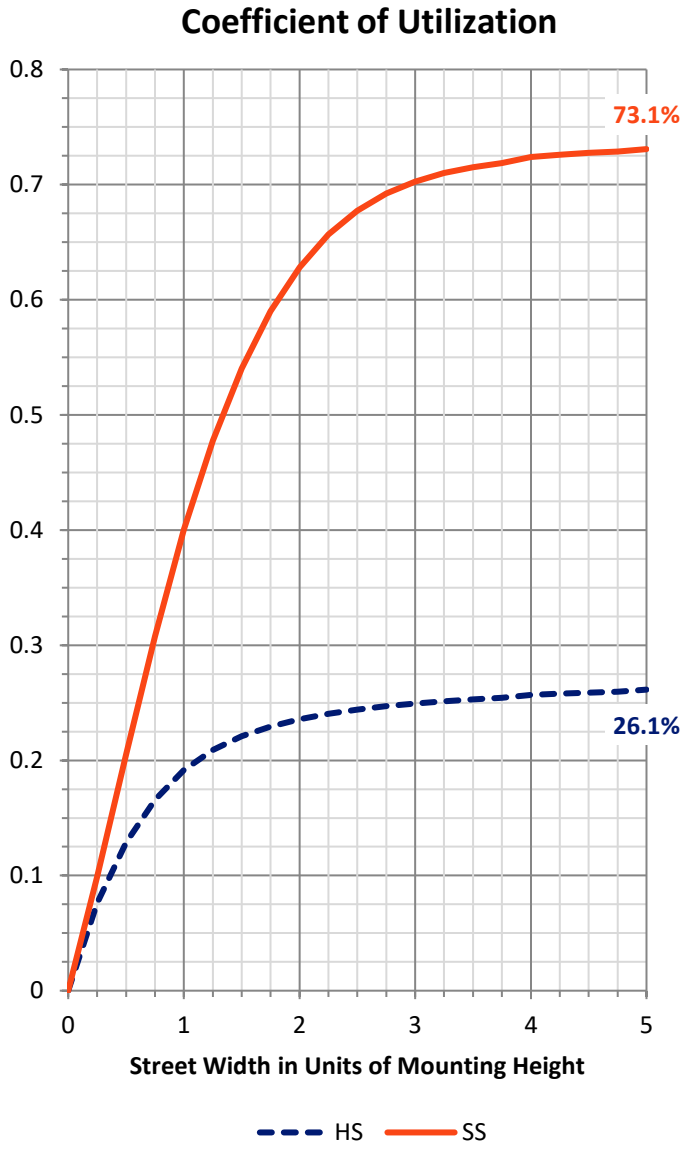
**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 366.6 | 0.0 | 366.6 |
| | % Fixture | 26.9 | 0.0 | 26.9 |
| **Street Side** | Lumens | 996.4 | 0.0 | 996.4 |
| | % Fixture | 73.1 | 0.0 | 73.1 |
| **Total** | Lumens | 1363.0 | 0.0 | 1363.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 21.4 | 1.6 |
| 10°-20° | 65.7 | 4.8 |
| 20°-30° | 113.8 | 8.3 |
| 30°-40° | 168.9 | 12.4 |
| 40°-50° | 229.4 | 16.8 |
| 50°-60° | 281.6 | 20.7 |
| 60°-70° | 296.8 | 21.8 |
| 70°-80° | 163.8 | 12.0 |
| 80°-90° | 21.6 | 1.6 |
| 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° | 1363.0 | 100.0 |
| 0°-180° | 1363.0 | 100.0 |



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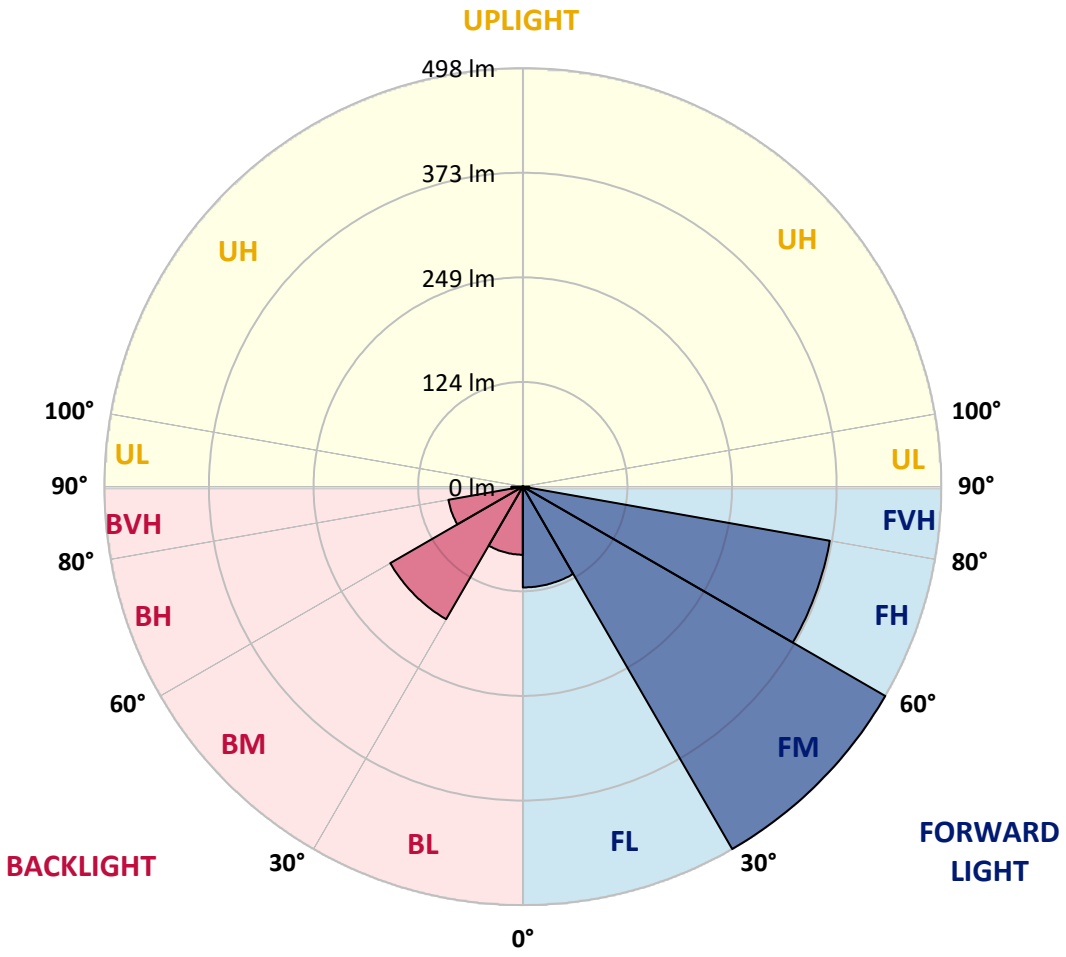
## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 119.9 | 8.8 | | | |
| FM | (30°-60°) | 497.8 | 36.5 | | | |
| FH | (60°-80°) | 370.8 | 27.2 | | | G0/660 |
| FVH | (80°-90°) | 7.9 | 0.6 | | | G0/10 |
| BL | (0°-30°) | 81.0 | 5.9 | B0/110 | | |
| BM | (30°-60°) | 182.1 | 13.4 | B0/220 | | |
| BH | (60°-80°) | 89.8 | 6.6 | B0/110 | | G0/110 |
| BVH | (80°-90°) | 13.7 | 1.0 | | | G1/100 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

**BUG Rating: B0-U0-G1**
Type IV Short



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REPORT NUMBER: P972215
CATALOG NUMBER: GKO-PB1B-730-U-T4W

**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 43° | 45° | 55° | 65° | 75° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 223.7 | 223.7 | 223.7 | 223.7 | 223.7 | 223.7 | 223.7 | 223.7 | 223.7 | 223.7 | 223.7 |
| 2.5° | 234.1 | 234.6 | 234.1 | 233.5 | 232.4 | 231.9 | 231.3 | 230.0 | 228.3 | 225.9 | 224.0 |
| 5° | 244.4 | 244.4 | 243.6 | 243.1 | 241.4 | 239.8 | 239.0 | 235.7 | 232.2 | 228.1 | 224.3 |
| 7.5° | 254.0 | 255.1 | 253.7 | 252.4 | 249.9 | 247.2 | 246.6 | 241.7 | 236.8 | 231.3 | 225.6 |
| 10° | 266.0 | 266.8 | 264.9 | 263.8 | 259.2 | 255.6 | 254.5 | 248.5 | 242.0 | 235.2 | 227.8 |
| 12.5° | 278.3 | 278.8 | 277.5 | 275.0 | 270.1 | 265.7 | 264.1 | 256.2 | 247.7 | 239.5 | 230.3 |
| 15° | 288.9 | 289.5 | 288.9 | 286.2 | 281.5 | 276.1 | 273.9 | 265.2 | 254.8 | 244.2 | 233.3 |
| 17.5° | 296.8 | 297.9 | 297.9 | 296.6 | 292.5 | 287.3 | 285.9 | 275.0 | 263.0 | 249.6 | 236.8 |
| 20° | 303.6 | 304.2 | 305.3 | 304.5 | 302.3 | 297.9 | 296.0 | 285.6 | 271.2 | 255.9 | 240.4 |
| 22.5° | 309.1 | 309.6 | 311.6 | 311.3 | 309.9 | 307.7 | 305.8 | 296.3 | 280.7 | 262.2 | 243.6 |
| 25° | 318.7 | 318.4 | 319.5 | 318.7 | 317.0 | 316.2 | 315.1 | 306.6 | 290.3 | 269.5 | 248.0 |
| 27.5° | 335.3 | 334.7 | 333.7 | 329.6 | 325.5 | 324.4 | 323.6 | 317.6 | 301.5 | 278.0 | 252.9 |
| 30° | 359.8 | 360.4 | 355.2 | 345.9 | 337.7 | 334.5 | 333.4 | 329.3 | 314.0 | 287.8 | 258.4 |
| 32.5° | 389.0 | 388.8 | 380.3 | 367.2 | 354.4 | 347.8 | 345.7 | 341.3 | 326.6 | 297.6 | 264.6 |
| 35° | 410.0 | 409.5 | 405.1 | 393.4 | 380.0 | 364.5 | 360.4 | 353.6 | 339.9 | 308.8 | 270.9 |
| 37.5° | 438.4 | 437.6 | 429.1 | 416.9 | 404.9 | 382.5 | 377.9 | 368.6 | 352.8 | 319.7 | 278.0 |
| 40° | 470.9 | 465.7 | 451.8 | 439.2 | 422.9 | 399.1 | 395.3 | 383.3 | 367.5 | 333.1 | 286.2 |
| 42.5° | 500.3 | 492.7 | 474.7 | 458.9 | 438.4 | 418.8 | 413.9 | 399.7 | 381.7 | 345.4 | 294.6 |
| 45° | 544.5 | 526.0 | 500.1 | 490.8 | 455.3 | 437.3 | 433.2 | 415.8 | 397.2 | 358.8 | 303.1 |
| 47.5° | 539.1 | 526.0 | 517.5 | 516.4 | 473.1 | 457.5 | 451.5 | 433.5 | 413.9 | 372.9 | 311.8 |
| 50° | 549.7 | 539.4 | 539.9 | 526.5 | 489.2 | 474.7 | 470.3 | 452.1 | 430.8 | 386.9 | 321.1 |
| 52.5° | 547.5 | 550.5 | 548.9 | 528.2 | 504.7 | 492.7 | 489.4 | 471.2 | 446.9 | 400.2 | 329.3 |
| 55° | 565.0 | 563.4 | 559.8 | 539.4 | 521.9 | 509.6 | 506.9 | 491.1 | 463.2 | 411.7 | 336.4 |
| 57.5° | 577.8 | 569.4 | 569.1 | 551.9 | 541.0 | 530.9 | 526.5 | 511.5 | 478.5 | 421.8 | 341.8 |
| 60° | 569.9 | 559.8 | 567.2 | 553.8 | 552.7 | 548.9 | 546.5 | 529.5 | 492.2 | 429.4 | 344.0 |
| 62.5° | 527.6 | 530.1 | 551.9 | 551.1 | 565.6 | 569.1 | 566.4 | 542.1 | 501.2 | 432.1 | 342.4 |
| 65° | 471.7 | 479.1 | 512.6 | 541.3 | 580.6 | 592.8 | 590.1 | 551.1 | 500.3 | 425.9 | 331.5 |
| 67° | 405.1 | 413.0 | 465.4 | 517.5 | 579.2 | 605.4 | 603.5 | 557.6 | 490.5 | 409.8 | 311.8 |
| 67.5° | 390.4 | 399.4 | 451.8 | 506.6 | 574.3 | 604.3 | 602.9 | 558.2 | 487.3 | 402.1 | 304.2 |
| 70° | 287.3 | 297.9 | 371.9 | 445.2 | 535.0 | 572.6 | 572.4 | 537.7 | 453.4 | 360.7 | 263.8 |
| 72.5° | 179.0 | 188.5 | 265.2 | 347.3 | 463.5 | 509.9 | 508.0 | 468.4 | 390.4 | 294.4 | 208.2 |
| 75° | 109.7 | 115.7 | 167.0 | 226.4 | 336.1 | 412.8 | 415.5 | 366.1 | 266.3 | 174.9 | 117.6 |
| 77.5° | 67.1 | 73.7 | 105.3 | 139.7 | 205.4 | 256.7 | 257.3 | 203.0 | 136.7 | 95.2 | 64.4 |
| 80° | 37.4 | 39.0 | 54.8 | 73.1 | 105.3 | 105.9 | 101.5 | 89.5 | 70.9 | 45.8 | 33.0 |
| 82.5° | 14.7 | 15.8 | 23.7 | 29.5 | 30.0 | 31.4 | 29.2 | 26.5 | 22.4 | 14.7 | 10.4 |
| 85° | 0.0 | 0.0 | 0.0 | 0.5 | 1.9 | 3.8 | 3.8 | 2.7 | 1.1 | 0.8 | 0.8 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

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Peachtree City, GA 30269

Scaled Data Report

REPORT NUMBER: P972215
CATALOG NUMBER: GKO-PB1B-730-U-T4W

**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 223.7 | 223.7 | 223.7 | 223.7 | 223.7 | 223.7 | 223.7 | 223.7 | 223.7 | 223.7 | 223.7 |
| 2.5° | 223.4 | 223.2 | 221.3 | 219.1 | 217.4 | 216.1 | 214.7 | 213.1 | 213.1 | 213.6 | 213.3 |
| 5° | 222.9 | 221.5 | 218.0 | 214.2 | 211.2 | 208.4 | 206.0 | 203.8 | 203.5 | 203.8 | 204.1 |
| 7.5° | 223.2 | 220.7 | 215.3 | 209.5 | 204.6 | 201.1 | 197.5 | 195.9 | 195.6 | 195.6 | 195.6 |
| 10° | 224.3 | 220.7 | 213.3 | 205.4 | 199.4 | 194.2 | 190.4 | 188.8 | 189.1 | 189.3 | 189.6 |
| 12.5° | 226.2 | 221.3 | 212.0 | 201.9 | 194.2 | 189.1 | 185.2 | 183.9 | 185.0 | 186.3 | 186.6 |
| 15° | 228.1 | 222.3 | 210.6 | 198.9 | 190.2 | 184.4 | 181.7 | 181.4 | 183.3 | 185.8 | 186.3 |
| 17.5° | 230.3 | 223.2 | 209.0 | 195.1 | 185.8 | 181.2 | 179.8 | 180.6 | 183.6 | 187.4 | 188.2 |
| 20° | 232.4 | 224.3 | 207.1 | 191.5 | 181.7 | 178.4 | 179.2 | 181.7 | 185.5 | 190.2 | 191.0 |
| 22.5° | 234.6 | 225.1 | 204.6 | 187.2 | 177.3 | 176.2 | 179.2 | 183.3 | 187.2 | 192.3 | 193.4 |
| 25° | 237.1 | 226.2 | 201.6 | 181.7 | 173.0 | 173.8 | 179.0 | 183.9 | 188.0 | 193.4 | 194.8 |
| 27.5° | 240.9 | 227.8 | 198.6 | 176.8 | 168.1 | 170.8 | 177.6 | 183.6 | 188.0 | 193.2 | 194.8 |
| 30° | 244.7 | 229.4 | 196.2 | 171.6 | 163.1 | 166.7 | 174.9 | 182.2 | 186.6 | 191.2 | 193.4 |
| 32.5° | 249.1 | 231.6 | 194.0 | 166.4 | 157.7 | 162.1 | 171.1 | 179.2 | 184.4 | 188.5 | 190.7 |
| 35° | 253.7 | 234.9 | 192.3 | 161.8 | 152.2 | 156.1 | 165.3 | 175.4 | 180.6 | 184.4 | 186.3 |
| 37.5° | 259.7 | 238.4 | 191.2 | 157.1 | 146.5 | 149.8 | 159.3 | 170.0 | 176.0 | 179.0 | 181.4 |
| 40° | 266.3 | 243.6 | 191.2 | 153.3 | 141.0 | 143.2 | 153.1 | 164.5 | 170.5 | 173.0 | 175.4 |
| 42.5° | 272.8 | 248.8 | 191.0 | 149.5 | 135.3 | 137.0 | 146.8 | 158.5 | 164.2 | 166.1 | 168.1 |
| 45° | 280.5 | 254.8 | 190.7 | 145.1 | 129.0 | 130.7 | 140.8 | 152.5 | 158.0 | 159.6 | 161.2 |
| 47.5° | 288.6 | 260.8 | 189.6 | 139.7 | 123.3 | 124.7 | 134.8 | 145.7 | 151.1 | 153.1 | 154.7 |
| 50° | 296.0 | 266.5 | 186.9 | 133.4 | 118.1 | 119.5 | 128.5 | 137.5 | 142.4 | 144.6 | 146.2 |
| 52.5° | 302.6 | 270.6 | 182.5 | 126.3 | 112.4 | 114.0 | 120.9 | 128.8 | 132.6 | 134.2 | 135.3 |
| 55° | 307.7 | 272.8 | 175.4 | 119.5 | 106.9 | 107.8 | 113.2 | 120.3 | 123.3 | 123.6 | 124.4 |
| 57.5° | 311.3 | 272.5 | 165.9 | 111.6 | 101.5 | 101.8 | 105.6 | 111.9 | 114.0 | 113.8 | 114.3 |
| 60° | 312.1 | 269.0 | 154.4 | 104.2 | 96.0 | 95.2 | 99.0 | 103.4 | 104.8 | 105.9 | 107.2 |
| 62.5° | 308.8 | 260.5 | 141.3 | 96.9 | 90.6 | 89.2 | 91.9 | 95.8 | 97.9 | 98.5 | 99.0 |
| 65° | 296.8 | 245.0 | 125.5 | 89.2 | 85.1 | 82.7 | 85.7 | 91.1 | 94.7 | 95.8 | 95.5 |
| 67° | *275.8* | *223.2* | *111.9* | *83.5* | *79.7* | *77.5* | *81.8* | *87.6* | *90.0* | *91.7* | *91.7* |
| 67.5° | 269.0 | 215.3 | 107.2 | 81.6 | 78.3 | 76.4 | 80.5 | 85.9 | 89.2 | 91.1 | 91.1 |
| 70° | 228.3 | 176.5 | 90.6 | 72.0 | 70.4 | 70.7 | 75.6 | 81.6 | 85.7 | 87.6 | 87.6 |
| 72.5° | 174.1 | 136.7 | 73.7 | 62.7 | 62.2 | 64.1 | 70.4 | 75.8 | 81.0 | 84.3 | 84.0 |
| 75° | 98.8 | 78.8 | 53.7 | 51.3 | 53.5 | 57.3 | 65.2 | 71.2 | 75.8 | 79.1 | 78.8 |
| 77.5° | 57.6 | 47.5 | 37.1 | 35.2 | 41.5 | 50.2 | 58.4 | 66.0 | 69.3 | 70.4 | 69.6 |
| 80° | 29.2 | 24.8 | 23.2 | 24.0 | 27.8 | 37.4 | 51.0 | 60.0 | 62.5 | 63.3 | 62.5 |
| 82.5° | 9.3 | 8.5 | 9.3 | 12.3 | 18.6 | 29.5 | 41.2 | 54.3 | 57.3 | 57.3 | 57.0 |
| 85° | 0.5 | 0.5 | 0.5 | 5.5 | 12.8 | 21.8 | 32.2 | 47.5 | 53.7 | 53.2 | 52.4 |
| 87.5° | 0.3 | 0.3 | 0.3 | 3.5 | 10.1 | 18.3 | 28.4 | 43.1 | 51.3 | 47.5 | 44.7 |
| 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

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

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP2-2501-321-4

Test Date: 04/10/2025

Luminaire Tested: GKO-PB1E-730-U-T4W

Data in this report applies to families of products including GKO-PB1E-730-U-T4W

Report Generated By FNC07603 / LDUCLS01DT447
Version: v7.04

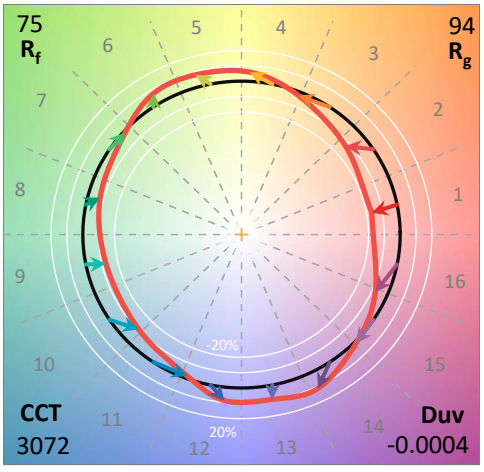
## Test Information

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | SP2-2501-321-4 |
| 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-730-U-T4W** |
| Description: | Gekko Wedge Wall Pack Fixture 1 SQ w/ T4W distribution |

## Spectral Parameters

| | |
|---|---|
| CCT (K): | 3072 |
| CIE u': | 0.2482 |
| CIE v': | 0.5193 |
| Duv: | -0.0004 |
| CIE x: | 0.4313 |
| CIE y: | 0.4010 |
| CIE z: | 0.1677 |
| Peak Wavelength (nm): | 593 |
| Dominant Wavelength (nm): | 582 |
| Purity: | 49.8225 |
| Rf: | 74.7 |
| Rg: | 94.2 |

| | | | | | |
|---|---|---|---|---|---|
| CRI (Ra): | 71.7 | | | | |
| R1: | 68.1 | R9: | -33.9 | | |
| R2: | 82.1 | R10: | 58.6 | | |
| R3: | 93.4 | R11: | 62.0 | | |
| R4: | 67.3 | R12: | 48.5 | | |
| R5: | 67.2 | R13: | 70.7 | | |
| R6: | 74.9 | R14: | 96.4 | | |
| R7: | 77.5 | R15: | 60.2 | | |
| R8: | 43.4 | | | | |




## Test Conditions

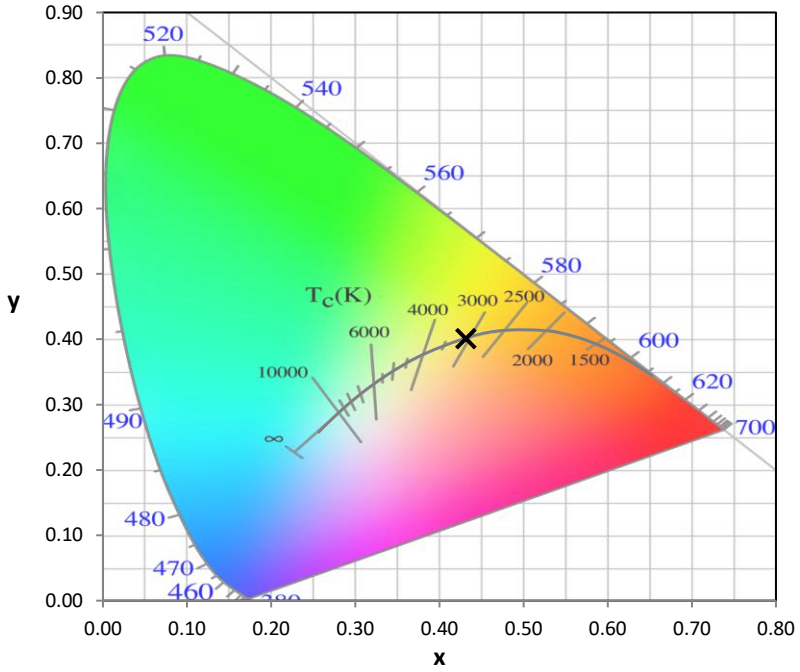
| | |
|---|---|
| Stabilization Time: | 30M |
| Operation Time: | 1H 30M |
| Sphere Temperature (°C): | 25.7 |

REPORT NUMBER: SP2-2501-321-4

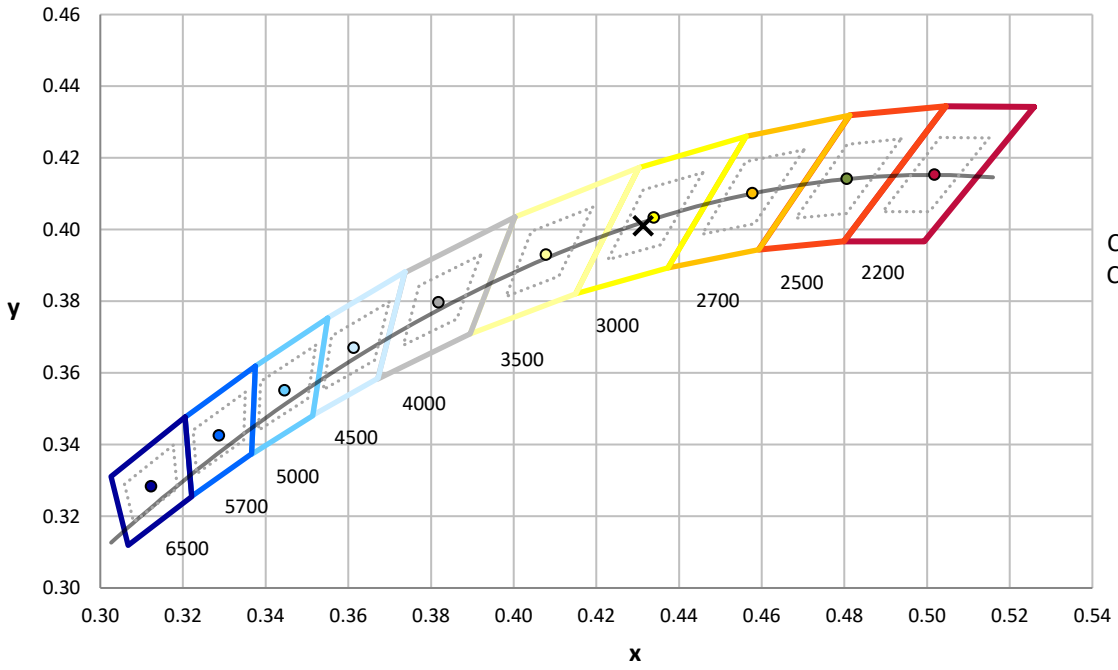
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN2187 | 1/6/2025 | 7/6/2025 |
| Power Meter | INXT2011002 | 1/21/2025 | 1/21/2026 |
| AC Power Source | IN0458 | 10/22/2024 | 10/22/2025 |
| DC Power 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: SP2-2501-321-4

## CIE 1931 Chromaticity Diagram




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

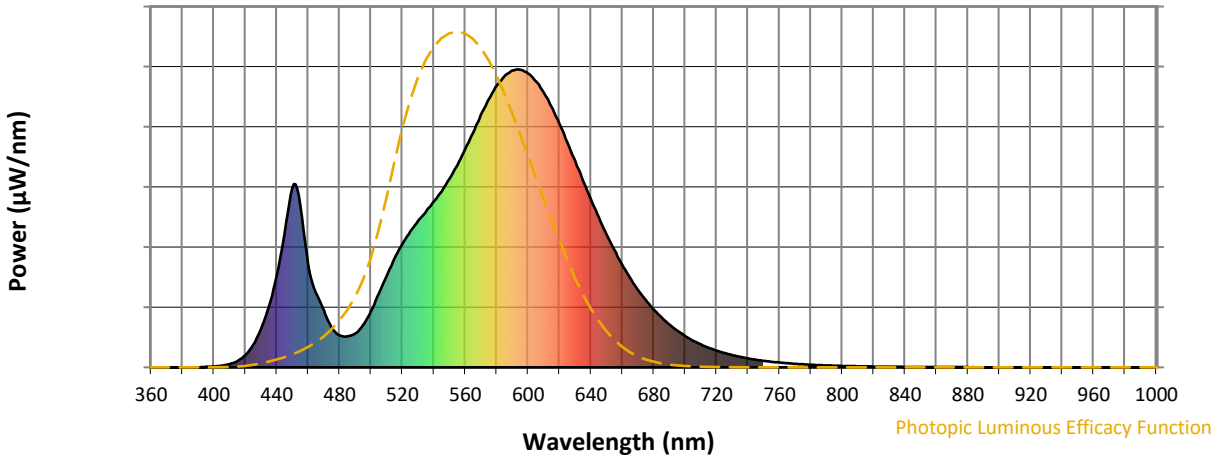



CCT = 3072K
CIE x = 0.4313
CIE y = 0.4010
Duv = -0.0004

Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP2-2501-321-4

## 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 | 817 | NR | 750 | 22 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 141 | NR | 625 | 756 | NR | 755 | 19 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 189 | NR | 630 | 693 | NR | 760 | 16 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 247 | NR | 635 | 628 | NR | 765 | 14 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 307 | NR | 640 | 564 | NR | 770 | 12 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 366 | NR | 645 | 504 | NR | 775 | 10 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 415 | NR | 650 | 446 | NR | 780 | 9 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 455 | NR | 655 | 393 | NR | 785 | 8 | NR | 915 | 0 | NR |
| 400 | 3 | NR | 530 | 491 | NR | 660 | 344 | NR | 790 | 7 | NR | 920 | 0 | NR |
| 405 | 6 | NR | 535 | 523 | NR | 665 | 300 | NR | 795 | 6 | NR | 925 | 0 | NR |
| 410 | 11 | NR | 540 | 556 | NR | 670 | 260 | NR | 800 | 5 | NR | 930 | 0 | NR |
| 415 | 21 | NR | 545 | 591 | NR | 675 | 226 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 41 | NR | 550 | 632 | NR | 680 | 195 | NR | 810 | 4 | NR | 940 | 0 | NR |
| 425 | 76 | NR | 555 | 679 | NR | 685 | 167 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 129 | NR | 560 | 732 | NR | 690 | 144 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 205 | NR | 565 | 787 | NR | 695 | 123 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 307 | NR | 570 | 847 | NR | 700 | 105 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 451 | NR | 575 | 900 | NR | 705 | 90 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 603 | NR | 580 | 944 | NR | 710 | 77 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 544 | NR | 585 | 977 | NR | 715 | 66 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 348 | NR | 590 | 997 | NR | 720 | 56 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 249 | NR | 595 | 998 | NR | 725 | 48 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 191 | NR | 600 | 986 | NR | 730 | 41 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 133 | NR | 605 | 960 | NR | 735 | 35 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 107 | NR | 610 | 921 | NR | 740 | 30 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 104 | NR | 615 | 874 | NR | 745 | 26 | NR | 875 | 1 | NR | | | |

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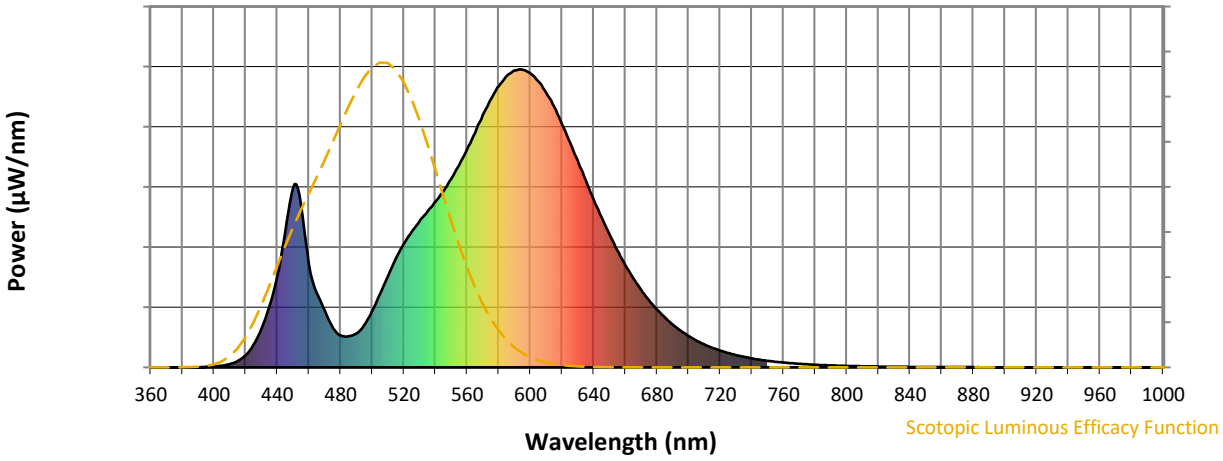
## Scotopic Flux vs. Wavelength




**Scotopic Lumens: NR** **S/P: 1.24**

| 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 | 817 | NR | 750 | 22 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 141 | NR | 625 | 756 | NR | 755 | 19 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 189 | NR | 630 | 693 | NR | 760 | 16 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 247 | NR | 635 | 628 | NR | 765 | 14 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 307 | NR | 640 | 564 | NR | 770 | 12 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 366 | NR | 645 | 504 | NR | 775 | 10 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 415 | NR | 650 | 446 | NR | 780 | 9 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 455 | NR | 655 | 393 | NR | 785 | 8 | NR | 915 | 0 | NR |
| 400 | 3 | NR | 530 | 491 | NR | 660 | 344 | NR | 790 | 7 | NR | 920 | 0 | NR |
| 405 | 6 | NR | 535 | 523 | NR | 665 | 300 | NR | 795 | 6 | NR | 925 | 0 | NR |
| 410 | 11 | NR | 540 | 556 | NR | 670 | 260 | NR | 800 | 5 | NR | 930 | 0 | NR |
| 415 | 21 | NR | 545 | 591 | NR | 675 | 226 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 41 | NR | 550 | 632 | NR | 680 | 195 | NR | 810 | 4 | NR | 940 | 0 | NR |
| 425 | 76 | NR | 555 | 679 | NR | 685 | 167 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 129 | NR | 560 | 732 | NR | 690 | 144 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 205 | NR | 565 | 787 | NR | 695 | 123 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 307 | NR | 570 | 847 | NR | 700 | 105 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 451 | NR | 575 | 900 | NR | 705 | 90 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 603 | NR | 580 | 944 | NR | 710 | 77 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 544 | NR | 585 | 977 | NR | 715 | 66 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 348 | NR | 590 | 997 | NR | 720 | 56 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 249 | NR | 595 | 998 | NR | 725 | 48 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 191 | NR | 600 | 986 | NR | 730 | 41 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 133 | NR | 605 | 960 | NR | 735 | 35 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 107 | NR | 610 | 921 | NR | 740 | 30 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 104 | NR | 615 | 874 | NR | 745 | 26 | NR | 875 | 1 | NR | | | |

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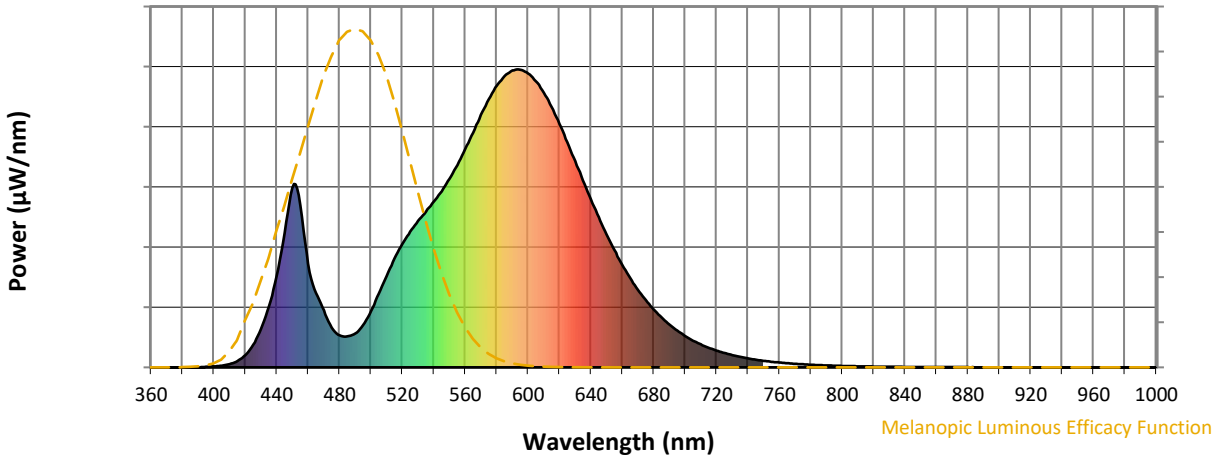
## Melanopic Flux vs. Wavelength




**Melanopic Lumens: NR** **M/P: 2.3**

| 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 | 817 | NR | 750 | 22 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 141 | NR | 625 | 756 | NR | 755 | 19 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 189 | NR | 630 | 693 | NR | 760 | 16 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 247 | NR | 635 | 628 | NR | 765 | 14 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 307 | NR | 640 | 564 | NR | 770 | 12 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 366 | NR | 645 | 504 | NR | 775 | 10 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 415 | NR | 650 | 446 | NR | 780 | 9 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 455 | NR | 655 | 393 | NR | 785 | 8 | NR | 915 | 0 | NR |
| 400 | 3 | NR | 530 | 491 | NR | 660 | 344 | NR | 790 | 7 | NR | 920 | 0 | NR |
| 405 | 6 | NR | 535 | 523 | NR | 665 | 300 | NR | 795 | 6 | NR | 925 | 0 | NR |
| 410 | 11 | NR | 540 | 556 | NR | 670 | 260 | NR | 800 | 5 | NR | 930 | 0 | NR |
| 415 | 21 | NR | 545 | 591 | NR | 675 | 226 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 41 | NR | 550 | 632 | NR | 680 | 195 | NR | 810 | 4 | NR | 940 | 0 | NR |
| 425 | 76 | NR | 555 | 679 | NR | 685 | 167 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 129 | NR | 560 | 732 | NR | 690 | 144 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 205 | NR | 565 | 787 | NR | 695 | 123 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 307 | NR | 570 | 847 | NR | 700 | 105 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 451 | NR | 575 | 900 | NR | 705 | 90 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 603 | NR | 580 | 944 | NR | 710 | 77 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 544 | NR | 585 | 977 | NR | 715 | 66 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 348 | NR | 590 | 997 | NR | 720 | 56 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 249 | NR | 595 | 998 | NR | 725 | 48 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 191 | NR | 600 | 986 | NR | 730 | 41 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 133 | NR | 605 | 960 | NR | 735 | 35 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 107 | NR | 610 | 921 | NR | 740 | 30 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 104 | NR | 615 | 874 | NR | 745 | 26 | NR | 875 | 1 | NR | | | |

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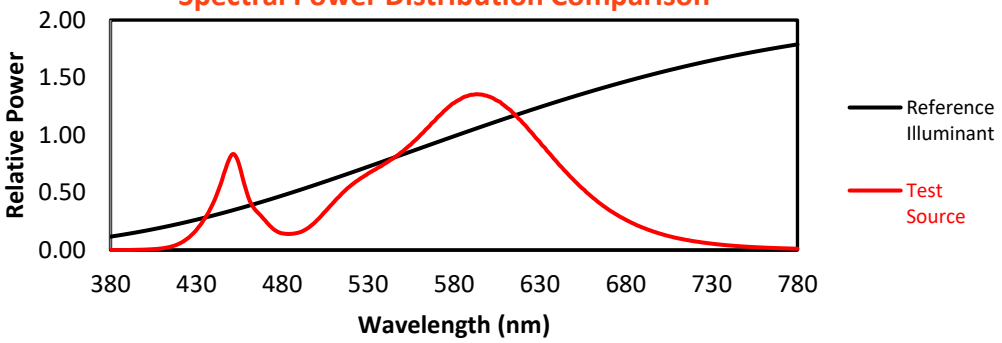
# TM-30-18

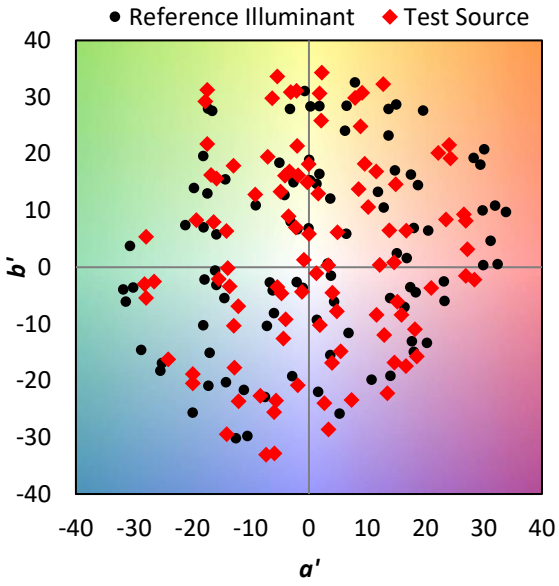
## Summary

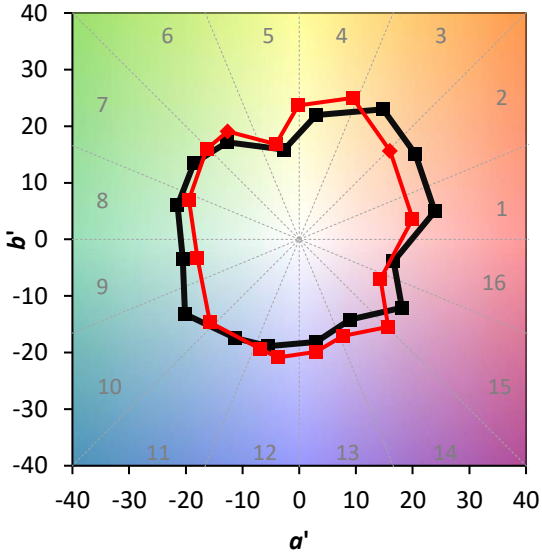
$R_f$ = 74.7
$R_g$ = 94.2
CIE $R_a$ = 71.7
$R_9$ = -33.9

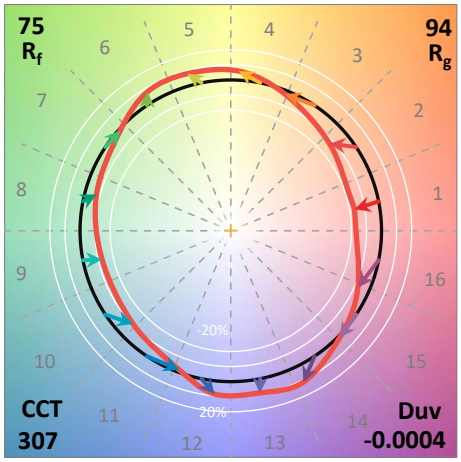
## Spectral Power Distribution Comparison

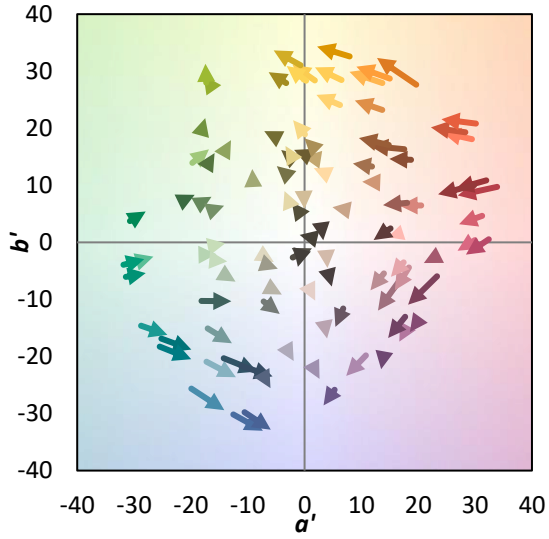



## Color Vector Graphics



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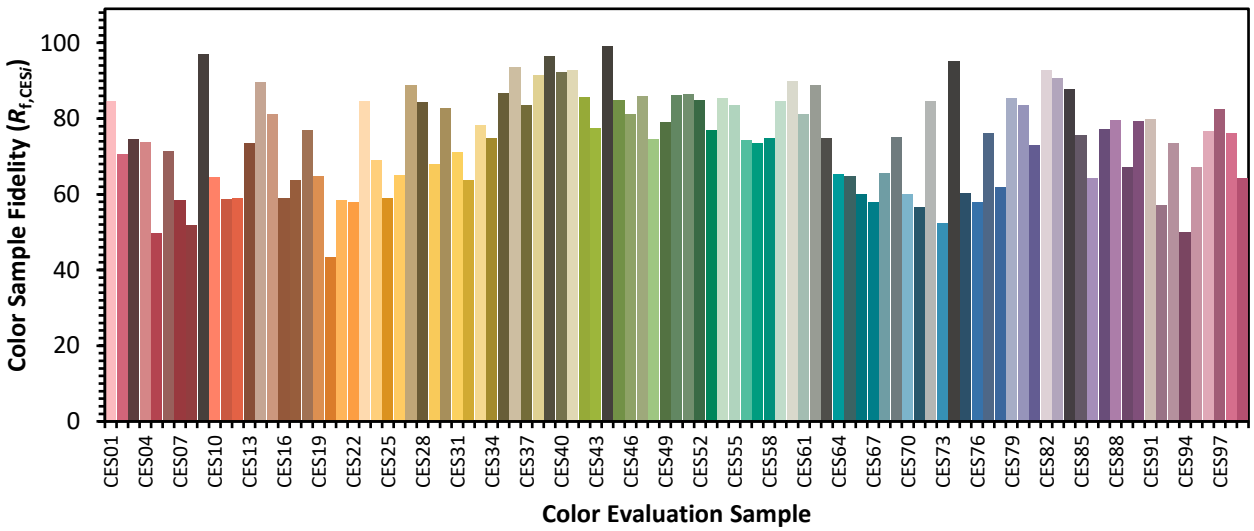
# TM-30-18

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

| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 65 | CES51 = 86 | CES76 = 58 |
| CES02 = 62 | CES27 = 89 | CES52 = 85 | CES77 = 76 |
| CES03 = 31 | CES28 = 84 | CES53 = 77 | CES78 = 62 |
| CES04 = 71 | CES29 = 68 | CES54 = 85 | CES79 = 85 |
| CES05 = 49 | CES30 = 83 | CES55 = 84 | CES80 = 84 |
| CES06 = 51 | CES31 = 71 | CES56 = 74 | CES81 = 73 |
| CES07 = 41 | CES32 = 64 | CES57 = 74 | CES82 = 93 |
| CES08 = 40 | CES33 = 78 | CES58 = 75 | CES83 = 91 |
| CES09 = 29 | CES34 = 75 | CES59 = 85 | CES84 = 88 |
| CES10 = 76 | CES35 = 87 | CES60 = 90 | CES85 = 76 |
| CES11 = 59 | CES36 = 94 | CES61 = 81 | CES86 = 64 |
| CES12 = 65 | CES37 = 84 | CES62 = 89 | CES87 = 77 |
| CES13 = 43 | CES38 = 92 | CES63 = 75 | CES88 = 80 |
| CES14 = 74 | CES39 = 96 | CES64 = 65 | CES89 = 67 |
| CES15 = 71 | CES40 = 92 | CES65 = 65 | CES90 = 79 |
| CES16 = 47 | CES41 = 93 | CES66 = 60 | CES91 = 80 |
| CES17 = 50 | CES42 = 86 | CES67 = 58 | CES92 = 57 |
| CES18 = 56 | CES43 = 78 | CES68 = 66 | CES93 = 74 |
| CES19 = 73 | CES44 = 99 | CES69 = 75 | CES94 = 50 |
| CES20 = 66 | CES45 = 85 | CES70 = 60 | CES95 = 67 |
| CES21 = 87 | CES46 = 81 | CES71 = 57 | CES96 = 77 |
| CES22 = 79 | CES47 = 86 | CES72 = 85 | CES97 = 83 |
| CES23 = 92 | CES48 = 75 | CES73 = 52 | CES98 = 76 |
| CES24 = 91 | CES49 = 79 | CES74 = 95 | CES99 = 64 |
| CES25 = 73 | CES50 = 86 | CES75 = 60 | |



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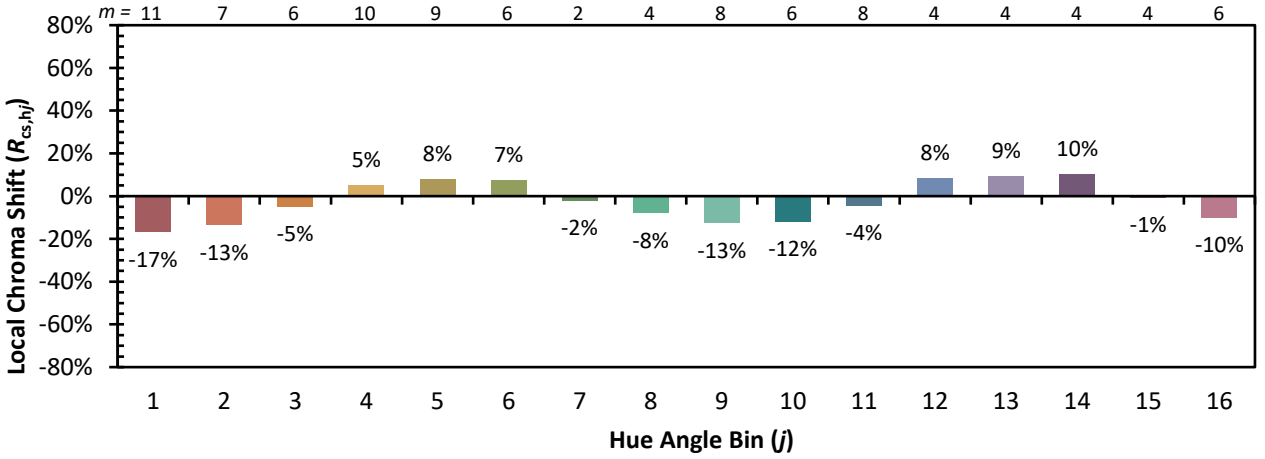
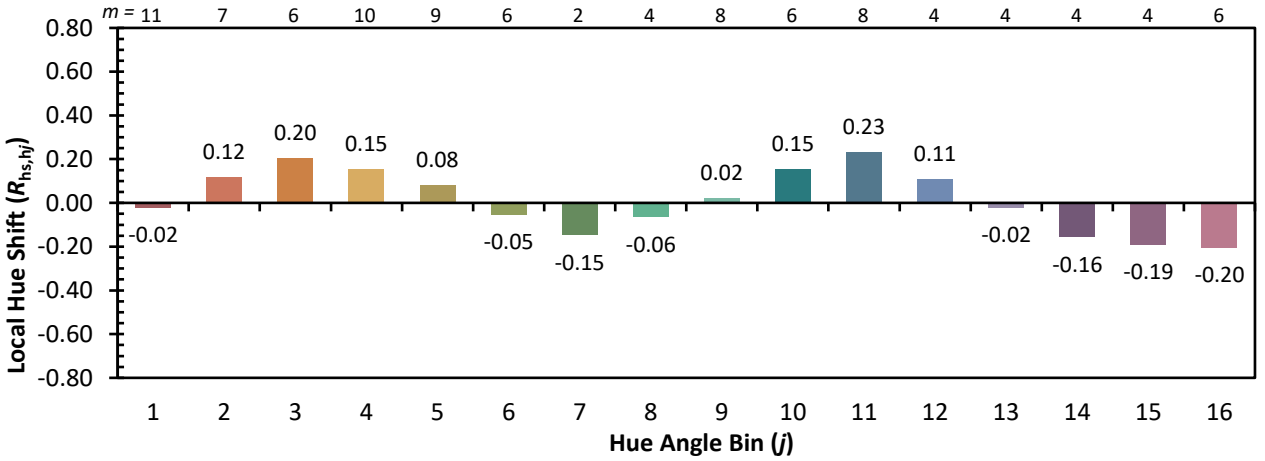
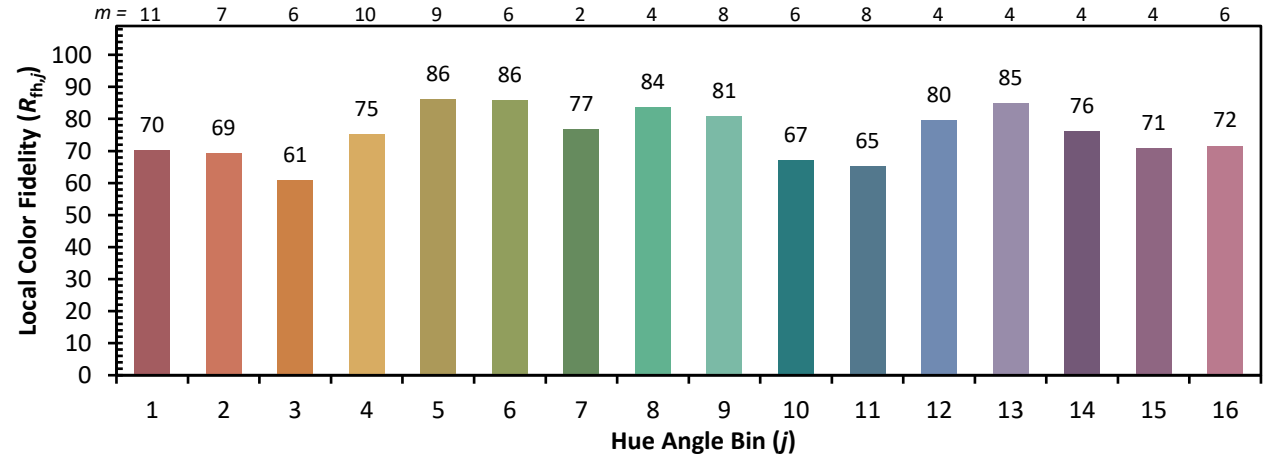
**TM-30-18**

## Color Rendition by Hue-Angle Bin



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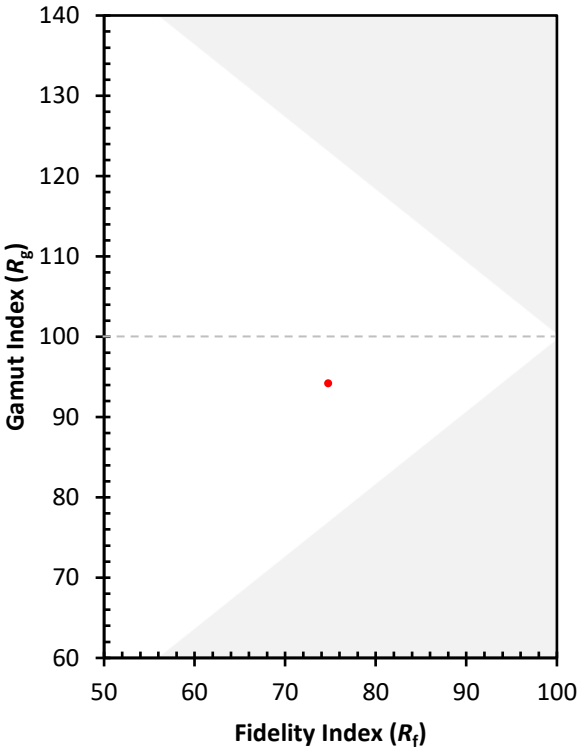
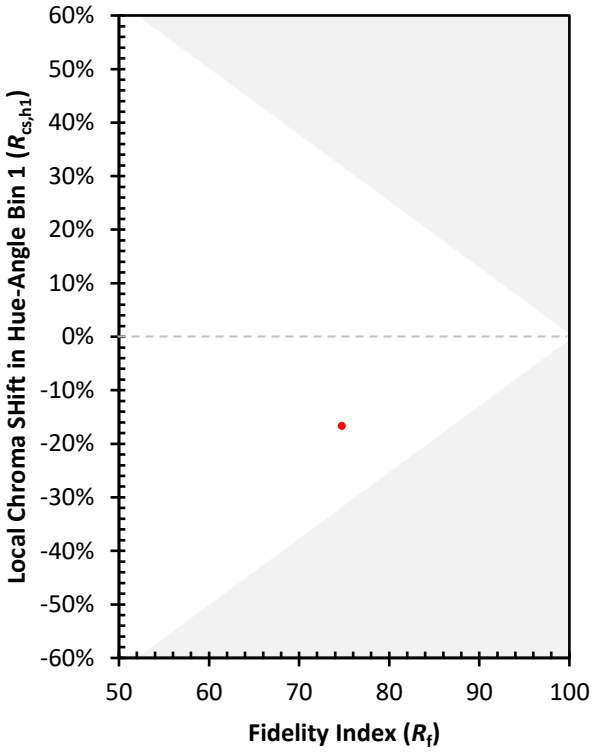
# TM-30-18

## Measure Comparisons




(END OF REPORT)