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: P1048379

Luminaire Tested: **GALN-SA9C-730-U-T4BC**

Issue Date: 07/10/2025

Report Generated By 670347003

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: | P1048379 |
| Test Lab: | INNOVATION CENTER(G3) |
| Issue Date: | 07/10/2025 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS (FORMERLY EATON) |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | GALN-SA9C-730-U-T4BC |
| Description: | GALLEON II AREA AND ROADWAY LUMINAIRE 1050mA 9xLight Square PACKAGE 70CRI 3000K FIXTURE w/ TYPE IV ANGLED BACKLIGHT CONTROL |
| Light Source: | (126) 3000K CCT, 70 CRI LEDS |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 48561.9 lumens |
| Efficiency: | N/A |
| Efficacy: | 116.4 lumens/watt |
| Luminous Opening: | Rectangular (W 1.5' x L: 1.5' x H: 0') |
| IES Classification: | Type IV - Short |
| BUG Rating: | B0 - U0 - G5 |

| | |
|---|---|
| Input Watts (W): | 417.1 |
| Input Voltage (V): | 120 |
| Input Current (Ain): | NR |
| Voltage Rise (V): | NR |
| Power Factor: | 0.97 |
| Total Harmonic Distortion (THDi): | NR |
| Frequency (hertz): | 60 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 28.75 FT |

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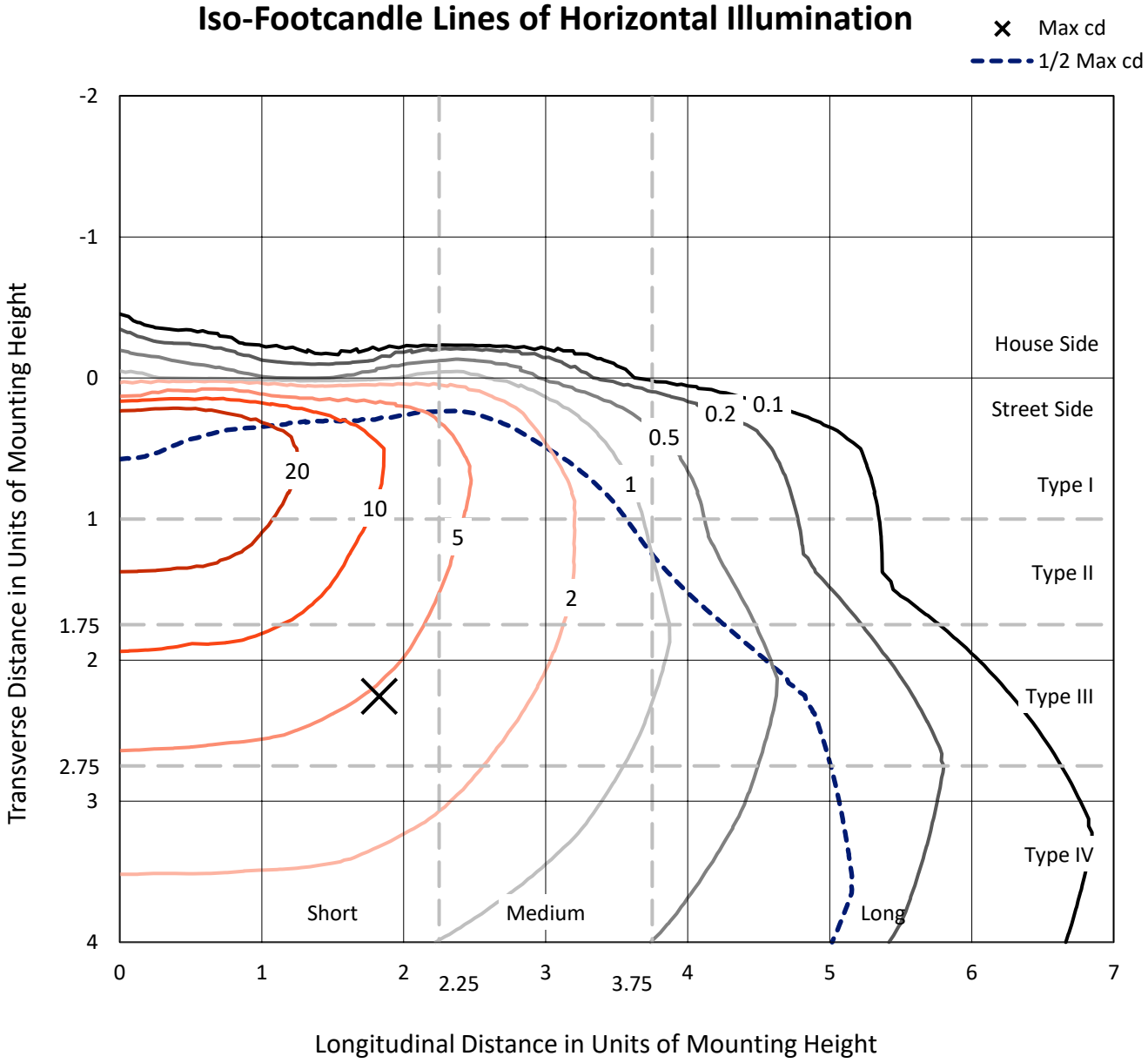
Scaled Data Report

REPORT NUMBER: P1048379
CATALOG NUMBER: GALN-SA9C-730-U-T4BC

## Iso-Footcandle Lines of Horizontal Illumination




Based on 15 foot mounting height. Maximum calculated value = 49.9 fc
Type IV - Short - N/A

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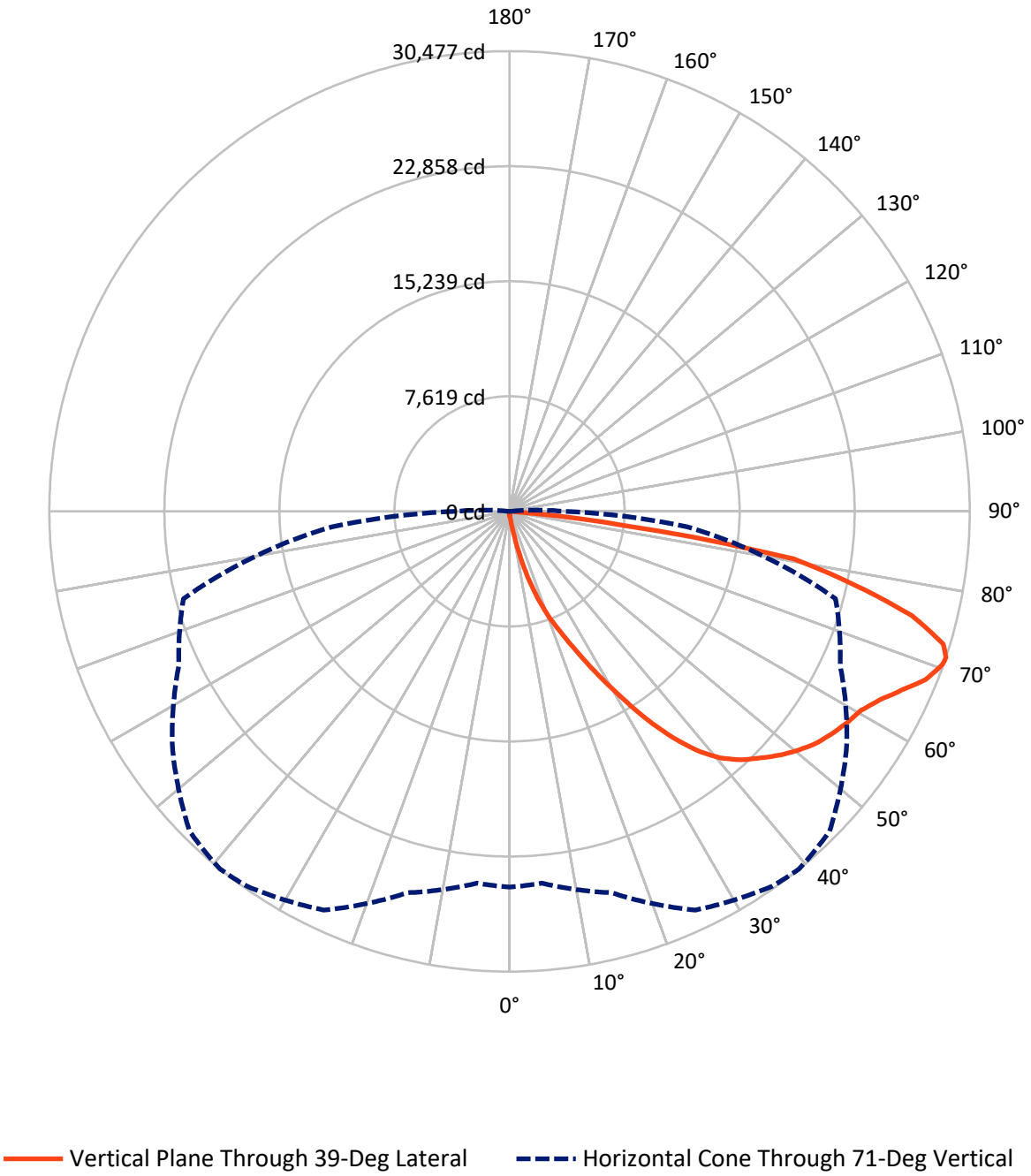
## Luminous Intensity Polar Plot



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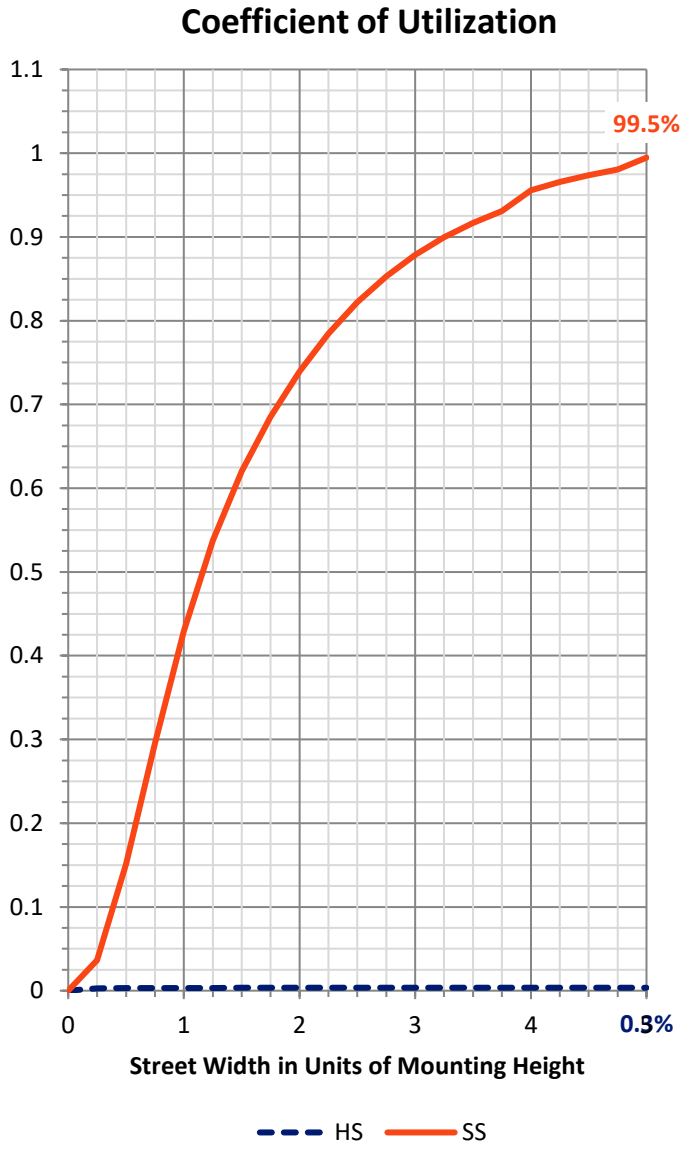
REPORT NUMBER: P1048379
CATALOG NUMBER: GALN-SA9C-730-U-T4BC

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 172.6 | 0.0 | 172.6 |
| | % Fixture | 0.4 | 0.0 | 0.4 |
| **Street Side** | Lumens | 48389.4 | 0.0 | 48389.4 |
| | % Fixture | 99.6 | 0.0 | 99.6 |
| **Total** | Lumens | 48561.9 | 0.0 | 48561.9 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 40.6 | 0.1 |
| 10°-20° | 519.0 | 1.1 |
| 20°-30° | 1848.4 | 3.8 |
| 30°-40° | 4454.8 | 9.2 |
| 40°-50° | 7455.4 | 15.4 |
| 50°-60° | 9575.6 | 19.7 |
| 60°-70° | 12118.0 | 25.0 |
| 70°-80° | 10803.7 | 22.2 |
| 80°-90° | 1746.4 | 3.6 |
| 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° | 48561.9 | 100.0 |
| 0°-180° | 48561.9 | 100.0 |



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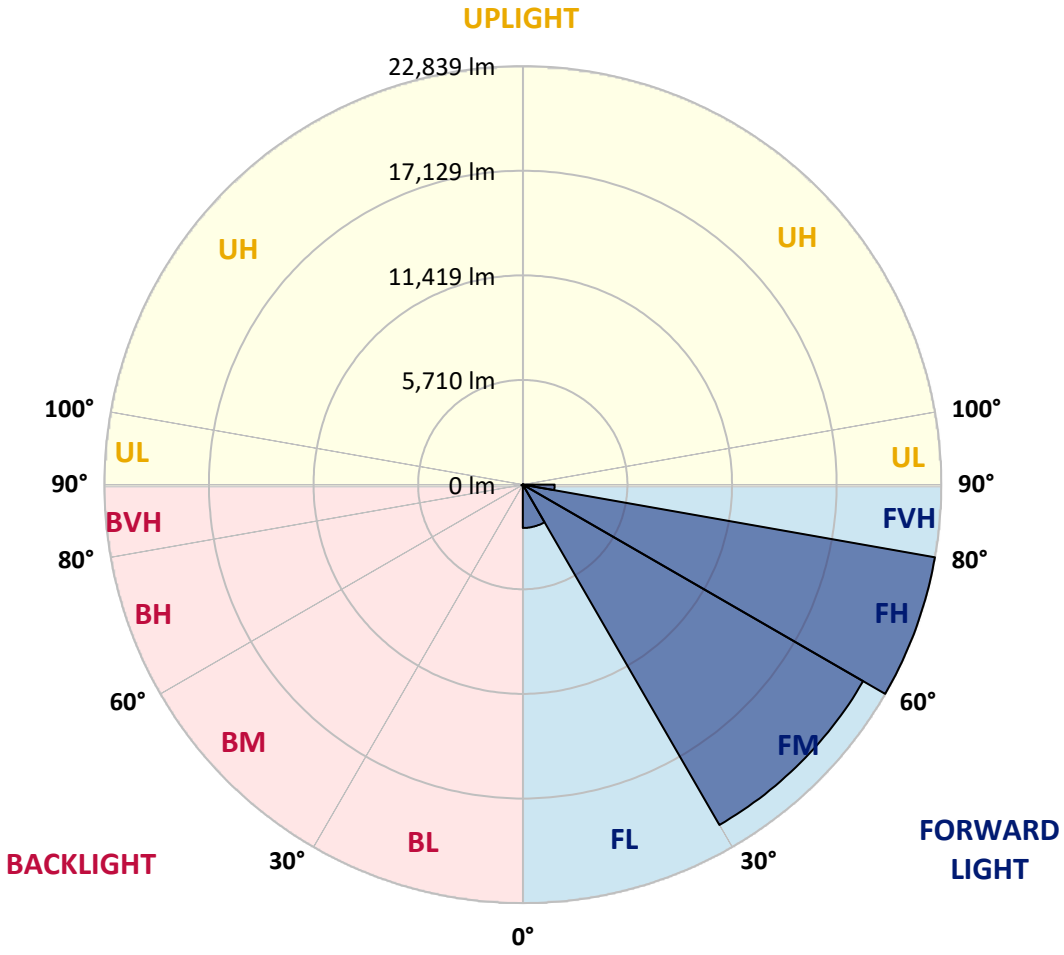
## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 2366.3 | 4.9 | | | |
| FM | (30°-60°) | 21445.9 | 44.2 | | | |
| FH | (60°-80°) | 22838.7 | 47.0 | | | G5 |
| FVH | (80°-90°) | 1738.4 | 3.6 | | | G5 |
| BL | (0°-30°) | 41.7 | 0.1 | B0/110 | | |
| BM | (30°-60°) | 39.9 | 0.1 | B0/220 | | |
| BH | (60°-80°) | 83.0 | 0.2 | B0/110 | | G0/110 |
| BVH | (80°-90°) | 7.9 | 0.0 | | | G0/10 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

**BUG Rating: B0-U0-G5**
Type IV Short



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Scaled Data Report

REPORT NUMBER: P1048379
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**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 39° | 45° | 55° | 65° | 75° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 266.3 | 266.3 | 266.3 | 266.3 | 266.3 | *266.3* | 266.3 | 266.3 | 266.3 | 266.3 | 266.3 |
| 2.5° | 305.7 | 305.7 | 305.7 | 295.9 | 295.9 | *292.6* | 289.3 | 289.3 | 282.7 | 279.4 | 272.9 |
| 5° | 463.5 | 453.7 | 430.6 | 417.5 | 391.2 | *374.8* | 358.3 | 335.3 | 312.3 | 295.9 | 276.1 |
| 7.5° | 1048.7 | 1071.7 | 996.1 | 854.7 | 710.1 | *647.6* | 542.4 | 437.2 | 361.6 | 312.3 | 279.4 |
| 10° | 2672.6 | 2659.5 | 2403.1 | 2120.4 | 1637.1 | *1443.2* | 1130.9 | 713.4 | 466.8 | 341.9 | 282.7 |
| 12.5° | 4546.5 | 4533.3 | 4230.9 | 3846.2 | 3208.5 | *2804.1* | 2212.4 | 1331.4 | 670.6 | 387.9 | 282.7 |
| 15° | 6121.1 | 6068.5 | 5973.2 | 5591.8 | 4845.6 | *4507.0* | 3724.6 | 2353.8 | 1084.8 | 466.8 | 289.3 |
| 17.5° | 7163.2 | 7117.2 | 7028.4 | 6890.4 | 6417.0 | *6015.9* | 5388.0 | 3698.3 | 1755.5 | 604.9 | 302.4 |
| 20° | 8119.8 | 8087.0 | 8014.6 | 7988.3 | 7682.6 | *7468.9* | 6949.5 | 5243.4 | 2735.1 | 821.8 | 322.2 |
| 22.5° | 9434.8 | 9365.8 | 9395.3 | 9237.6 | 8938.4 | *8682.0* | 8363.1 | 6860.8 | 3931.7 | 1183.5 | 358.3 |
| 25° | 11045.6 | 11012.7 | 10930.6 | 10818.8 | 10404.6 | *10181.0* | 9691.2 | 8386.1 | 5269.7 | 1656.8 | 397.8 |
| 27.5° | 12991.7 | 12955.6 | 12935.9 | 12679.4 | 12202.8 | *11959.5* | 11275.7 | 9826.0 | 6775.3 | 2320.9 | 450.4 |
| 30° | 15233.7 | 15250.2 | 15122.0 | 14793.2 | 14237.7 | *13895.8* | 13192.3 | 11334.9 | 8317.1 | 3100.0 | 506.3 |
| 32.5° | 17554.6 | 17521.8 | 17324.5 | 16936.6 | 16440.2 | *16121.3* | 15227.2 | 12988.5 | 9934.5 | 4129.0 | 572.0 |
| 35° | 20056.3 | 19993.9 | 19474.5 | 19030.7 | 18606.6 | *18205.5* | 17390.3 | 14908.3 | 11551.9 | 5282.8 | 660.8 |
| 37.5° | 22581.0 | 22288.5 | 21246.4 | 20684.2 | 20391.7 | *20062.9* | 19303.5 | 16956.3 | 13159.4 | 6571.5 | 769.2 |
| 40° | 24487.7 | 24260.9 | 23024.8 | 21989.3 | 21755.9 | *21476.5* | 20911.1 | 18724.9 | 14868.8 | 7955.5 | 900.7 |
| 42.5° | 25543.0 | 25418.1 | 24306.9 | 23284.6 | 22735.6 | *22489.0* | 22005.8 | 20270.0 | 16558.6 | 9484.1 | 1091.4 |
| 45° | 25993.4 | 25799.4 | 25056.5 | 24579.8 | 23705.3 | *23297.7* | 22722.4 | 21437.0 | 18323.9 | 11219.8 | 1357.7 |
| 47.5° | 25855.3 | 25743.5 | 25211.0 | 25385.2 | 24750.7 | *24116.3* | 23271.4 | 22331.2 | 19832.8 | 13212.0 | 1722.6 |
| 50° | 24987.4 | 24892.1 | 24727.7 | 25671.2 | 25592.3 | *24842.8* | 23981.5 | 23038.0 | 21065.6 | 15266.6 | 2288.0 |
| 52.5° | 23337.1 | 23297.7 | 23718.5 | 25447.7 | 26069.0 | *25483.8* | 24665.3 | 23662.6 | 22216.2 | 17413.3 | 3096.7 |
| 55° | 21210.2 | 21371.3 | 22574.5 | 25099.2 | 26312.2 | *25957.2* | 25270.1 | 24247.8 | 23139.9 | 19333.1 | 4290.0 |
| 57.5° | 20335.8 | 20378.5 | 21880.8 | 24852.6 | 26420.7 | *26374.7* | 25858.6 | 24806.6 | 23988.1 | 20868.3 | 6111.2 |
| 60° | 21358.1 | 21292.4 | 22084.7 | 25040.0 | 26637.7 | *26749.5* | 26381.3 | 25326.0 | 24724.4 | 22186.6 | 8537.3 |
| 62.5° | 23205.7 | 23169.5 | 23422.6 | 25838.8 | 27272.1 | *27499.0* | 27107.8 | 25700.8 | 25375.3 | 23054.4 | 11305.3 |
| 65° | 24855.9 | 24780.3 | 25250.4 | 27255.7 | 28386.6 | *28547.7* | 28205.8 | 26341.8 | 25661.3 | 23685.6 | 13905.6 |
| 67.5° | 25569.3 | 25552.8 | 26308.9 | 28603.5 | 29556.9 | *29731.1* | 29432.0 | 27226.1 | 25595.6 | 23886.1 | 15052.9 |
| 70° | 25243.8 | 25181.4 | 26391.1 | 29175.5 | 30217.6 | *30414.9* | 30125.6 | 27554.9 | 24882.2 | 23251.7 | 13353.4 |
| 71° | *24885.5* | *24717.9* | *26144.6* | *29136.1* | *30309.7* | *30477.3* | *29971.1* | *27255.7* | *24165.6* | *22350.9* | *11811.6* |
| 72.5° | 23774.4 | 23804.0 | 25467.4 | 28725.2 | 30089.4 | *30040.1* | 29096.6 | 26184.0 | 23301.0 | 20306.2 | 9487.4 |
| 75° | 21039.3 | 21213.5 | 23274.7 | 26999.3 | 28123.6 | *27495.7* | 26052.5 | 24136.0 | 21565.2 | 14559.8 | 6587.9 |
| 77.5° | 17193.0 | 17452.7 | 19717.7 | 23679.0 | 23360.2 | *23297.7* | 23238.5 | 21266.1 | 18415.9 | 7820.7 | 4582.6 |
| 80° | 8208.6 | 8770.7 | 11893.8 | 16903.7 | 18363.3 | *19070.1* | 18626.3 | 17137.1 | 14241.0 | 3724.6 | 2738.4 |
| 82.5° | 535.8 | 529.3 | 749.5 | 1420.2 | 5986.3 | *7738.5* | 12294.8 | 12248.8 | 9927.9 | 1814.6 | 1117.7 |
| 85° | 253.1 | 259.7 | 286.0 | 325.5 | 378.0 | *414.2* | 572.0 | 3353.1 | 4750.3 | 864.6 | 243.3 |
| 87.5° | 147.9 | 151.2 | 177.5 | 226.8 | 295.9 | *328.7* | 391.2 | 503.0 | 618.0 | 476.7 | 52.6 |
| 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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Scaled Data Report

REPORT NUMBER: P1048379
CATALOG NUMBER: GALN-SA9C-730-U-T4BC

**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 266.3 | 266.3 | 266.3 | 266.3 | 266.3 | 266.3 | 266.3 | 266.3 | 266.3 | 266.3 | 266.3 |
| 2.5° | 269.6 | 266.3 | 256.4 | 246.6 | 236.7 | 230.1 | 226.8 | 230.1 | 230.1 | 233.4 | 233.4 |
| 5° | 269.6 | 259.7 | 243.3 | 223.5 | 210.4 | 197.2 | 190.7 | 187.4 | 190.7 | 190.7 | 190.7 |
| 7.5° | 266.3 | 249.8 | 226.8 | 203.8 | 187.4 | 170.9 | 164.4 | 161.1 | 161.1 | 164.4 | 164.4 |
| 10° | 259.7 | 243.3 | 213.7 | 187.4 | 167.7 | 147.9 | 138.1 | 128.2 | 128.2 | 128.2 | 131.5 |
| 12.5° | 256.4 | 233.4 | 197.2 | 170.9 | 144.6 | 121.6 | 101.9 | 92.0 | 95.3 | 95.3 | 95.3 |
| 15° | 249.8 | 223.5 | 187.4 | 154.5 | 121.6 | 92.0 | 75.6 | 65.7 | 69.0 | 72.3 | 69.0 |
| 17.5° | 249.8 | 220.3 | 174.2 | 134.8 | 95.3 | 69.0 | 55.9 | 49.3 | 49.3 | 52.6 | 52.6 |
| 20° | 249.8 | 213.7 | 164.4 | 115.1 | 72.3 | 52.6 | 39.4 | 36.2 | 36.2 | 42.7 | 46.0 |
| 22.5° | 256.4 | 213.7 | 151.2 | 95.3 | 59.2 | 39.4 | 29.6 | 26.3 | 29.6 | 36.2 | 39.4 |
| 25° | 266.3 | 210.4 | 138.1 | 85.5 | 49.3 | 29.6 | 23.0 | 16.4 | 19.7 | 26.3 | 29.6 |
| 27.5° | 276.1 | 207.1 | 124.9 | 75.6 | 39.4 | 23.0 | 16.4 | 13.1 | 9.9 | 13.1 | 13.1 |
| 30° | 286.0 | 207.1 | 111.8 | 62.5 | 32.9 | 16.4 | 9.9 | 6.6 | 3.3 | 0.0 | 0.0 |
| 32.5° | 292.6 | 200.5 | 101.9 | 49.3 | 26.3 | 13.1 | 6.6 | 3.3 | 0.0 | 0.0 | 0.0 |
| 35° | 299.2 | 194.0 | 88.8 | 39.4 | 19.7 | 9.9 | 3.3 | 0.0 | 0.0 | 0.0 | 0.0 |
| 37.5° | 305.7 | 184.1 | 75.6 | 32.9 | 16.4 | 6.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 40° | 312.3 | 170.9 | 62.5 | 29.6 | 9.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 42.5° | 318.9 | 161.1 | 52.6 | 23.0 | 6.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 45° | 335.3 | 154.5 | 42.7 | 19.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 47.5° | 364.9 | 147.9 | 39.4 | 13.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 50° | 407.6 | 141.4 | 36.2 | 9.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 52.5° | 466.8 | 138.1 | 32.9 | 6.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 55° | 572.0 | 134.8 | 29.6 | 6.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 57.5° | 752.8 | 131.5 | 29.6 | 6.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 60° | 1153.9 | 124.9 | 29.6 | 6.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 62.5° | 2061.2 | 121.6 | 26.3 | 6.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 65° | 3593.1 | 124.9 | 26.3 | 6.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 67.5° | 5151.3 | 131.5 | 23.0 | 9.9 | 3.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 70° | 4408.4 | 115.1 | 23.0 | 13.1 | 6.6 | 3.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 71° | *3593.1* | *101.9* | *23.0* | *13.1* | *6.6* | *3.3* | *3.3* | *0.0* | *0.0* | *0.0* | *0.0* |
| 72.5° | 2311.0 | 78.9 | 19.7 | 13.1 | 6.6 | 6.6 | 3.3 | 0.0 | 0.0 | 0.0 | 0.0 |
| 75° | 976.4 | 65.7 | 19.7 | 13.1 | 9.9 | 6.6 | 6.6 | 3.3 | 0.0 | 0.0 | 0.0 |
| 77.5° | 417.5 | 49.3 | 19.7 | 16.4 | 13.1 | 9.9 | 9.9 | 6.6 | 3.3 | 0.0 | 0.0 |
| 80° | 157.8 | 39.4 | 23.0 | 19.7 | 16.4 | 16.4 | 13.1 | 6.6 | 3.3 | 0.0 | 0.0 |
| 82.5° | 72.3 | 32.9 | 23.0 | 19.7 | 19.7 | 16.4 | 13.1 | 9.9 | 6.6 | 0.0 | 0.0 |
| 85° | 46.0 | 29.6 | 23.0 | 19.7 | 19.7 | 16.4 | 16.4 | 9.9 | 6.6 | 0.0 | 0.0 |
| 87.5° | 36.2 | 29.6 | 23.0 | 23.0 | 19.7 | 19.7 | 13.1 | 9.9 | 3.3 | 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 |

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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: SP1-2407-184-4

Test Date: 10/10/2024

Luminaire Tested: GSS-SB1A-730-U-5WQ

Data in this report applies to families of products including GSS-SB1A-730-U-5WQ

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

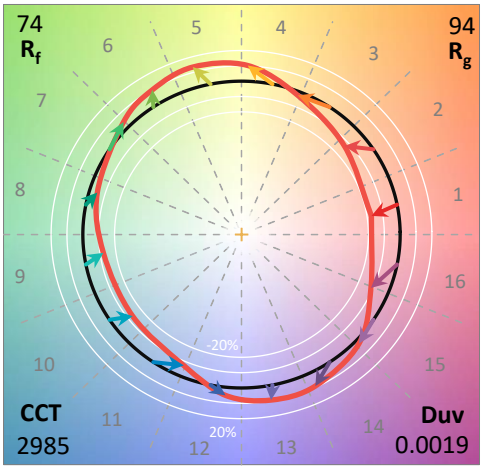
## Test Information

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | SP1-2407-184-4 |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Photometer: | SP1 - 76IN SPHERE |
| Measurement Geometry: | 4π |
| Issue Date: | 10/15/2024 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | McGraw-Edison |
| Catalog Number: | **GSS-SB1A-730-U-5WQ** |
| Description: | GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI 3000K CCT 26 LEDS |

## Spectral Parameters

| | |
|---|---|
| CCT (K): | 2985 |
| CIE u': | 0.2504 |
| CIE v': | 0.5243 |
| Duv: | 0.0019 |
| CIE x: | 0.4408 |
| CIE y: | 0.4101 |
| CIE z: | 0.1491 |
| Peak Wavelength (nm): | 595 |
| Dominant Wavelength (nm): | 582 |
| Purity: | 55.41818 |
| Rf: | 73.8 |
| Rg: | 94.4 |

| | |
|---|---|
| CRI (Ra): | 70.8 |
| R1: | 66.3 |
| R2: | 80.6 |
| R3: | 94.5 |
| R4: | 68.2 |
| R5: | 66.5 |
| R6: | 74.7 |
| R7: | 76.2 |
| R8: | 39.6 |
| R9: | -43.2 |
| R10: | 57.6 |
| R11: | 64.8 |
| R12: | 53.5 |
| R13: | 68.7 |
| R14: | 97.0 |
| R15: | 56.4 |




## Test Conditions

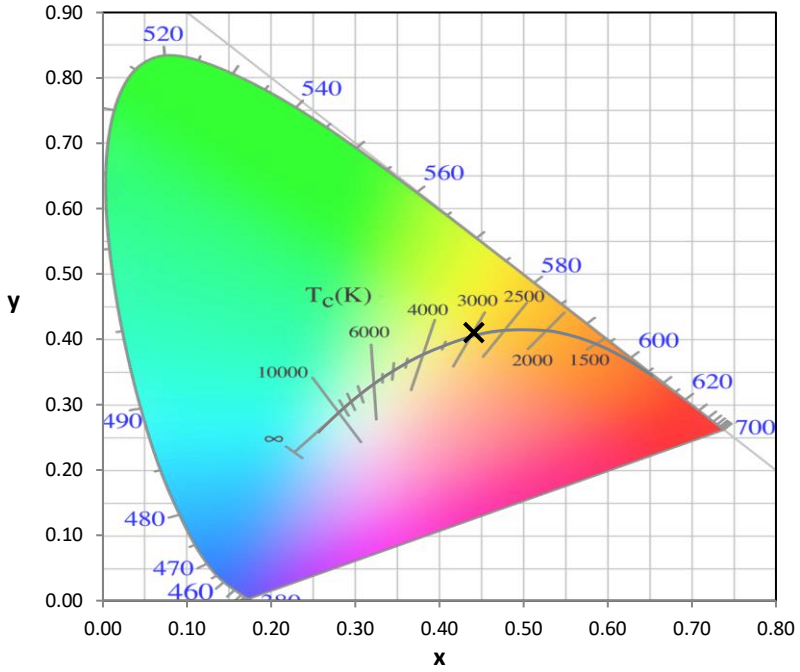
| | |
|---|---|
| Stabilization Time: | 36M |
| Operation Time: | 1H 36M |
| Sphere Temperature (°C): | 25.2 |

REPORT NUMBER: SP1-2407-184-4

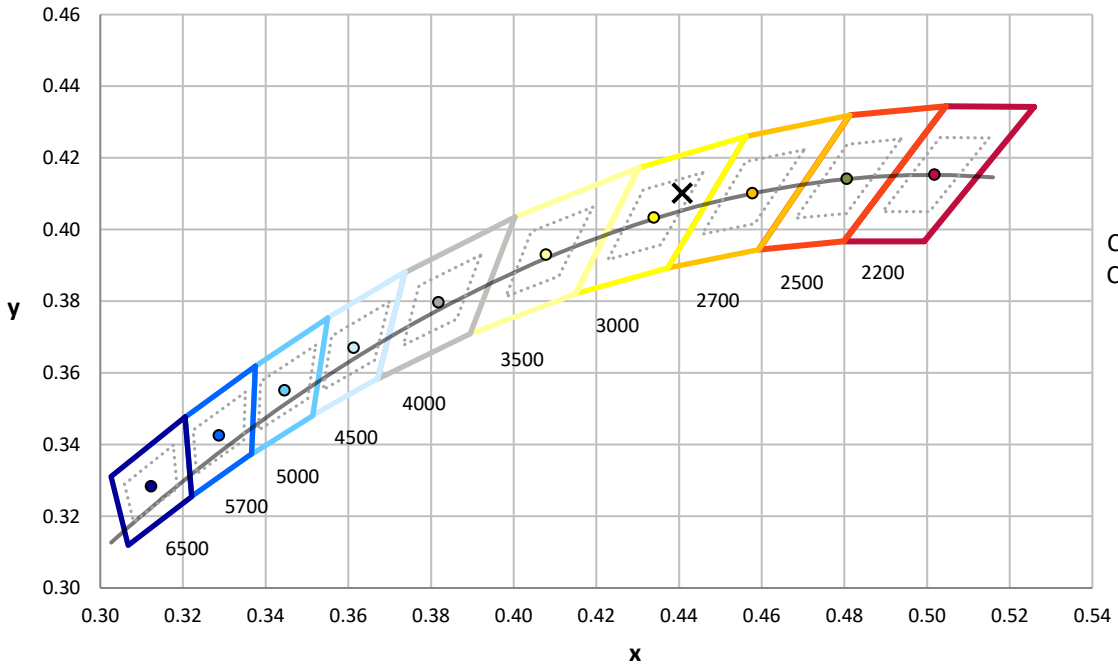
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 2/8/2024 | 2/8/2025 |
| AC Power Source | IN0063 | 10/24/2023 | 10/24/2024 |
| DC Power Source | IN0208 | 10/24/2023 | 10/24/2024 |
| Sphere Thermometer | IN0085 | 10/24/2023 | 10/24/2024 |
| Room Thermometer | IN0046 | 10/24/2023 | 10/24/2024 |

REPORT NUMBER: SP1-2407-184-4

## CIE 1931 Chromaticity Diagram




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




CCT = 2985K
CIE x = 0.4408
CIE y = 0.4101
Duv = 0.0019

Point lies inside the ANSI 3000K 4-step quadrangle

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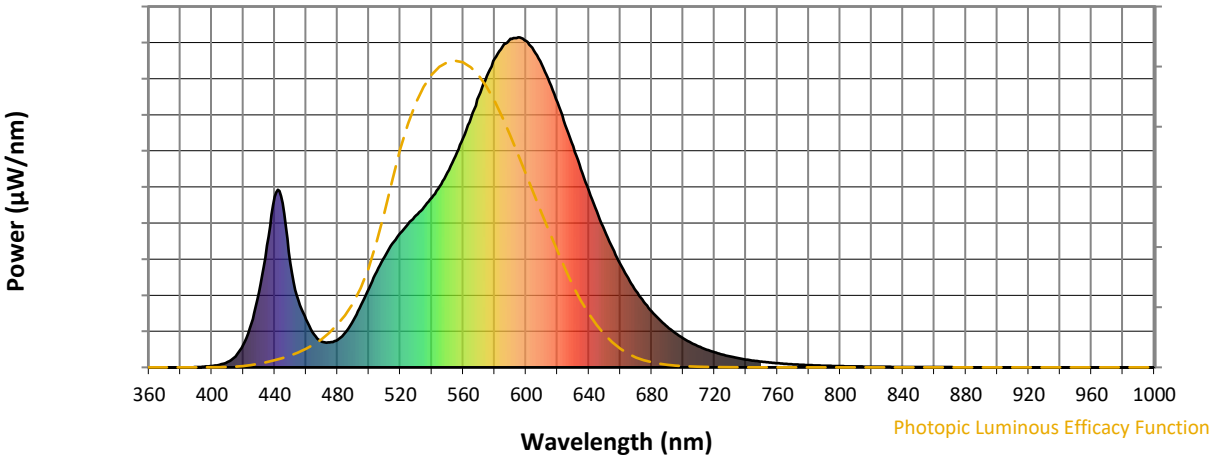
## Photopic Flux vs. Wavelength




## 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 | 142 | NR | 620 | 803 | NR | 750 | 17 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 189 | NR | 625 | 734 | NR | 755 | 15 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 240 | NR | 630 | 670 | NR | 760 | 13 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 290 | NR | 635 | 600 | NR | 765 | 11 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 335 | NR | 640 | 535 | NR | 770 | 9 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 375 | NR | 645 | 473 | NR | 775 | 8 | NR | 905 | 0 | NR |
| 390 | 1 | NR | 520 | 408 | NR | 650 | 415 | NR | 780 | 7 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 434 | NR | 655 | 362 | NR | 785 | 6 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 461 | NR | 660 | 313 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 8 | NR | 535 | 486 | NR | 665 | 271 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 16 | NR | 540 | 514 | NR | 670 | 231 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 33 | NR | 545 | 549 | NR | 675 | 198 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 69 | NR | 550 | 591 | NR | 680 | 169 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 131 | NR | 555 | 640 | NR | 685 | 144 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 227 | NR | 560 | 695 | NR | 690 | 123 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 369 | NR | 565 | 757 | NR | 695 | 104 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 517 | NR | 570 | 822 | NR | 700 | 88 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 498 | NR | 575 | 882 | NR | 705 | 75 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 315 | NR | 580 | 935 | NR | 710 | 63 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 204 | NR | 585 | 972 | NR | 715 | 54 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 145 | NR | 590 | 996 | NR | 720 | 46 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 100 | NR | 595 | 1000 | NR | 725 | 39 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 78 | NR | 600 | 989 | NR | 730 | 33 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 76 | NR | 605 | 960 | NR | 735 | 28 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 83 | NR | 610 | 918 | NR | 740 | 24 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 105 | NR | 615 | 864 | NR | 745 | 20 | NR | 875 | 1 | NR | | | |

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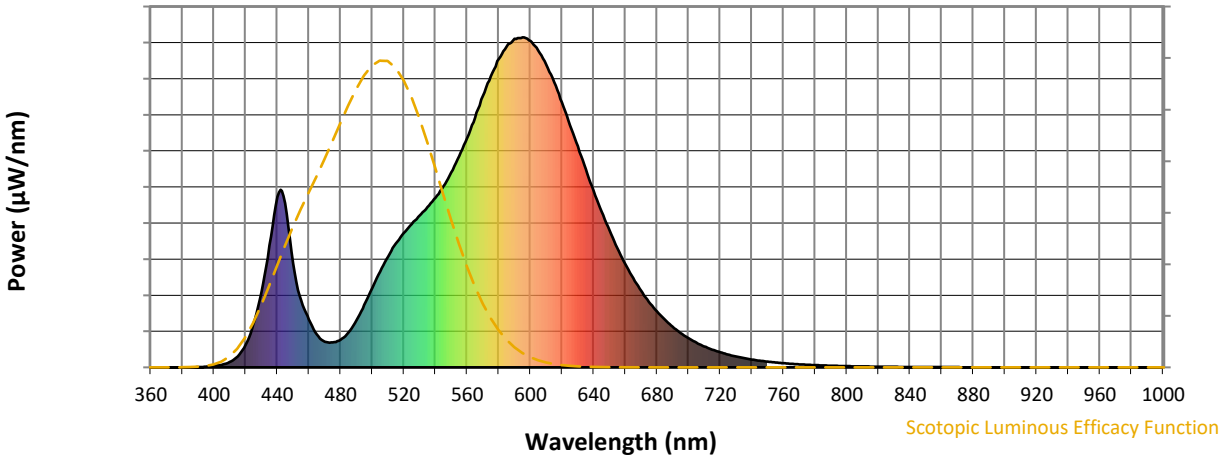
## Scotopic Flux vs. Wavelength




**Scotopic Lumens: NR** **S/P: 1.19**

| 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 | 142 | NR | 620 | 803 | NR | 750 | 17 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 189 | NR | 625 | 734 | NR | 755 | 15 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 240 | NR | 630 | 670 | NR | 760 | 13 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 290 | NR | 635 | 600 | NR | 765 | 11 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 335 | NR | 640 | 535 | NR | 770 | 9 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 375 | NR | 645 | 473 | NR | 775 | 8 | NR | 905 | 0 | NR |
| 390 | 1 | NR | 520 | 408 | NR | 650 | 415 | NR | 780 | 7 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 434 | NR | 655 | 362 | NR | 785 | 6 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 461 | NR | 660 | 313 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 8 | NR | 535 | 486 | NR | 665 | 271 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 16 | NR | 540 | 514 | NR | 670 | 231 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 33 | NR | 545 | 549 | NR | 675 | 198 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 69 | NR | 550 | 591 | NR | 680 | 169 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 131 | NR | 555 | 640 | NR | 685 | 144 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 227 | NR | 560 | 695 | NR | 690 | 123 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 369 | NR | 565 | 757 | NR | 695 | 104 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 517 | NR | 570 | 822 | NR | 700 | 88 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 498 | NR | 575 | 882 | NR | 705 | 75 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 315 | NR | 580 | 935 | NR | 710 | 63 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 204 | NR | 585 | 972 | NR | 715 | 54 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 145 | NR | 590 | 996 | NR | 720 | 46 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 100 | NR | 595 | 1000 | NR | 725 | 39 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 78 | NR | 600 | 989 | NR | 730 | 33 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 76 | NR | 605 | 960 | NR | 735 | 28 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 83 | NR | 610 | 918 | NR | 740 | 24 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 105 | NR | 615 | 864 | NR | 745 | 20 | NR | 875 | 1 | NR | | | |

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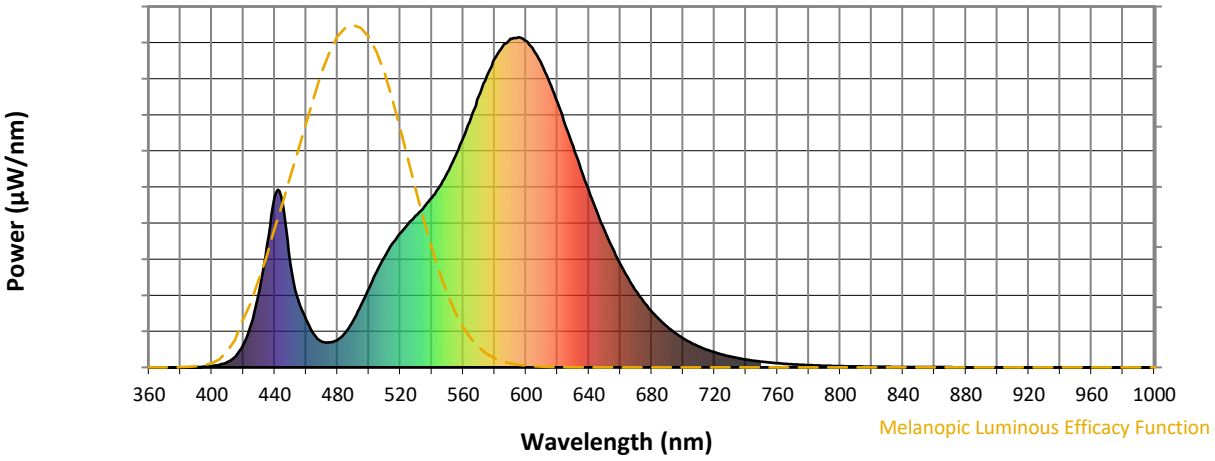
## Melanopic Flux vs. Wavelength




**Melanopic Lumens: NR** **M/P: 2.13**

| 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 | 142 | NR | 620 | 803 | NR | 750 | 17 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 189 | NR | 625 | 734 | NR | 755 | 15 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 240 | NR | 630 | 670 | NR | 760 | 13 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 290 | NR | 635 | 600 | NR | 765 | 11 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 335 | NR | 640 | 535 | NR | 770 | 9 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 375 | NR | 645 | 473 | NR | 775 | 8 | NR | 905 | 0 | NR |
| 390 | 1 | NR | 520 | 408 | NR | 650 | 415 | NR | 780 | 7 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 434 | NR | 655 | 362 | NR | 785 | 6 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 461 | NR | 660 | 313 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 8 | NR | 535 | 486 | NR | 665 | 271 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 16 | NR | 540 | 514 | NR | 670 | 231 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 33 | NR | 545 | 549 | NR | 675 | 198 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 69 | NR | 550 | 591 | NR | 680 | 169 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 131 | NR | 555 | 640 | NR | 685 | 144 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 227 | NR | 560 | 695 | NR | 690 | 123 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 369 | NR | 565 | 757 | NR | 695 | 104 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 517 | NR | 570 | 822 | NR | 700 | 88 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 498 | NR | 575 | 882 | NR | 705 | 75 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 315 | NR | 580 | 935 | NR | 710 | 63 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 204 | NR | 585 | 972 | NR | 715 | 54 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 145 | NR | 590 | 996 | NR | 720 | 46 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 100 | NR | 595 | 1000 | NR | 725 | 39 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 78 | NR | 600 | 989 | NR | 730 | 33 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 76 | NR | 605 | 960 | NR | 735 | 28 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 83 | NR | 610 | 918 | NR | 740 | 24 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 105 | NR | 615 | 864 | NR | 745 | 20 | NR | 875 | 1 | NR | | | |

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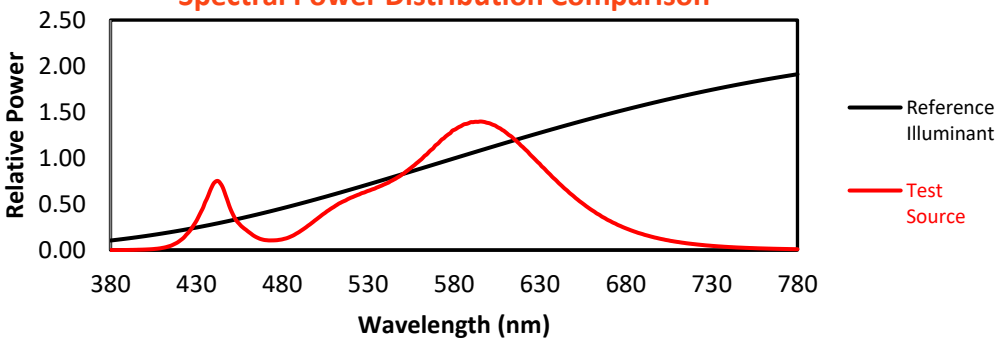
# TM-30-18

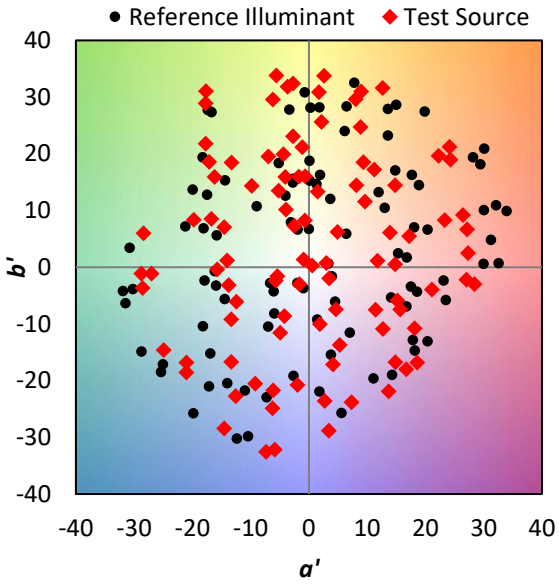
## Summary

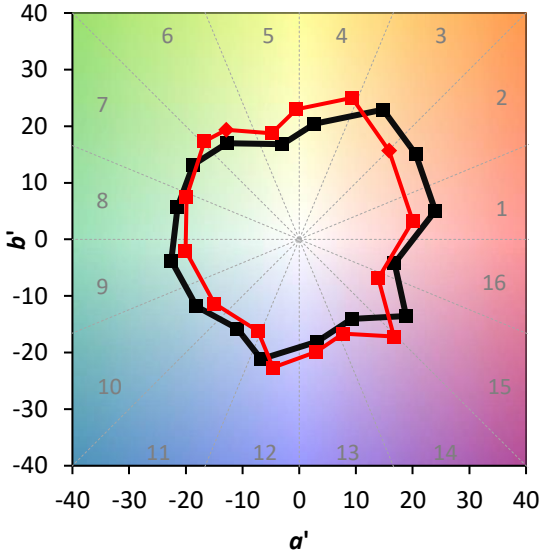
$R_f$ = 73.8
$R_g$ = 94.4
CIE $R_a$ = 70.8
$R_9$ = -43.2

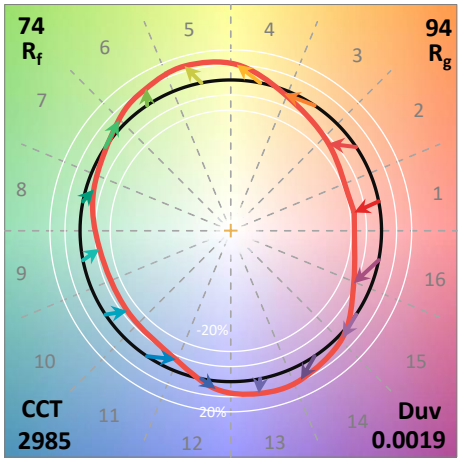
## Spectral Power Distribution Comparison

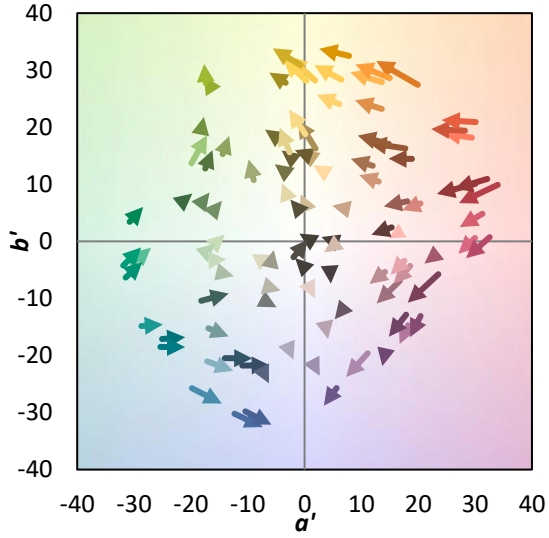



## Color Vector Graphics



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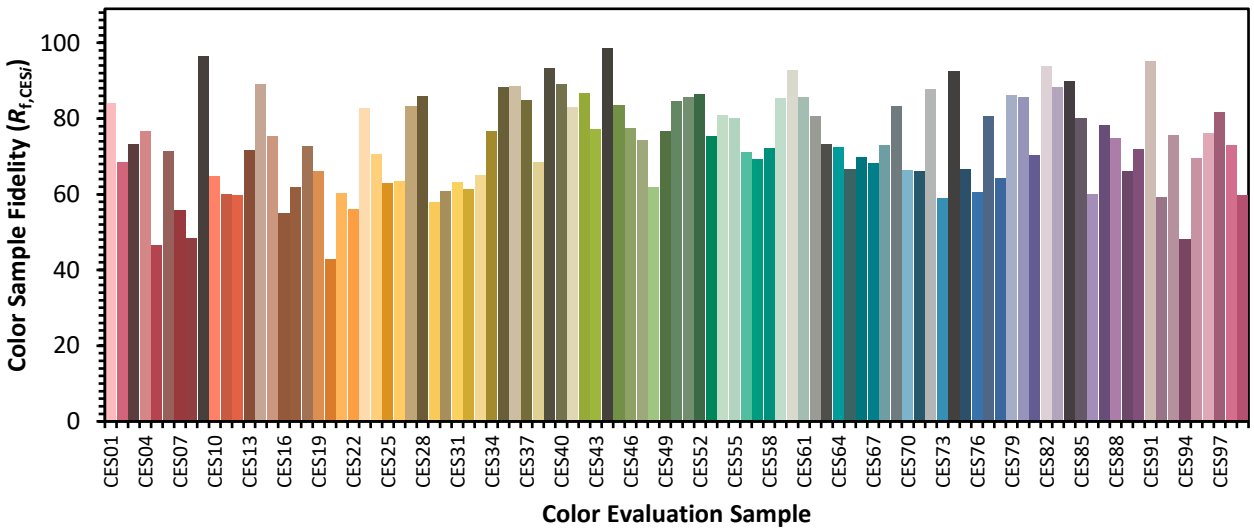
# TM-30-18

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

| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 63 | CES51 = 86 | CES76 = 61 |
| CES02 = 62 | CES27 = 83 | CES52 = 86 | CES77 = 81 |
| CES03 = 31 | CES28 = 86 | CES53 = 75 | CES78 = 64 |
| CES04 = 71 | CES29 = 58 | CES54 = 81 | CES79 = 86 |
| CES05 = 49 | CES30 = 61 | CES55 = 80 | CES80 = 86 |
| CES06 = 51 | CES31 = 63 | CES56 = 71 | CES81 = 70 |
| CES07 = 41 | CES32 = 61 | CES57 = 69 | CES82 = 94 |
| CES08 = 40 | CES33 = 65 | CES58 = 72 | CES83 = 88 |
| CES09 = 29 | CES34 = 77 | CES59 = 85 | CES84 = 90 |
| CES10 = 76 | CES35 = 88 | CES60 = 93 | CES85 = 80 |
| CES11 = 59 | CES36 = 89 | CES61 = 86 | CES86 = 60 |
| CES12 = 65 | CES37 = 85 | CES62 = 81 | CES87 = 78 |
| CES13 = 43 | CES38 = 69 | CES63 = 73 | CES88 = 75 |
| CES14 = 74 | CES39 = 93 | CES64 = 72 | CES89 = 66 |
| CES15 = 71 | CES40 = 89 | CES65 = 67 | CES90 = 72 |
| CES16 = 47 | CES41 = 83 | CES66 = 70 | CES91 = 95 |
| CES17 = 50 | CES42 = 87 | CES67 = 68 | CES92 = 59 |
| CES18 = 56 | CES43 = 77 | CES68 = 73 | CES93 = 76 |
| CES19 = 73 | CES44 = 99 | CES69 = 83 | CES94 = 48 |
| CES20 = 66 | CES45 = 83 | CES70 = 66 | CES95 = 70 |
| CES21 = 87 | CES46 = 77 | CES71 = 66 | CES96 = 76 |
| CES22 = 79 | CES47 = 74 | CES72 = 88 | CES97 = 82 |
| CES23 = 92 | CES48 = 62 | CES73 = 59 | CES98 = 73 |
| CES24 = 91 | CES49 = 77 | CES74 = 93 | CES99 = 60 |
| CES25 = 73 | CES50 = 85 | CES75 = 67 | |



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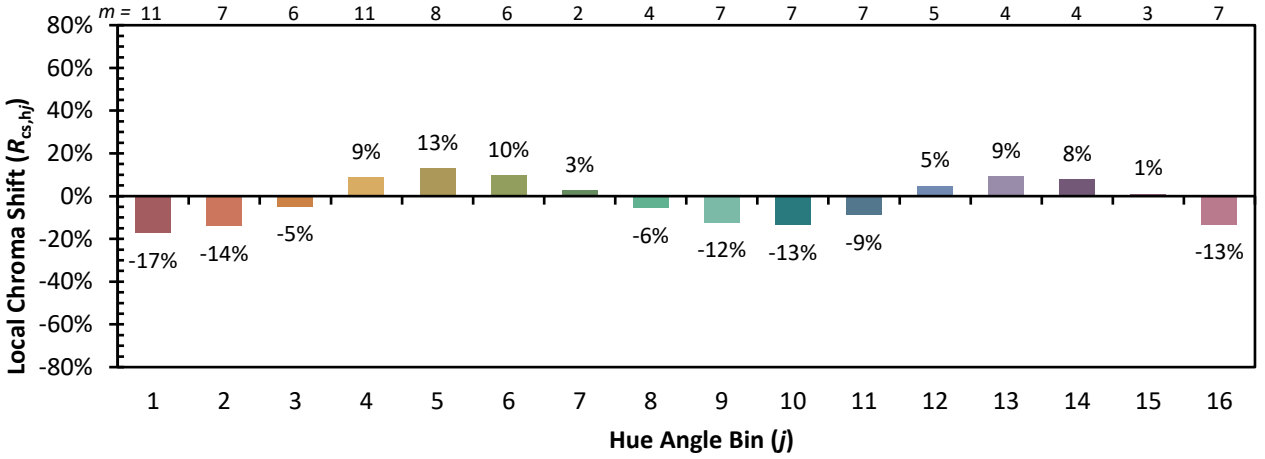
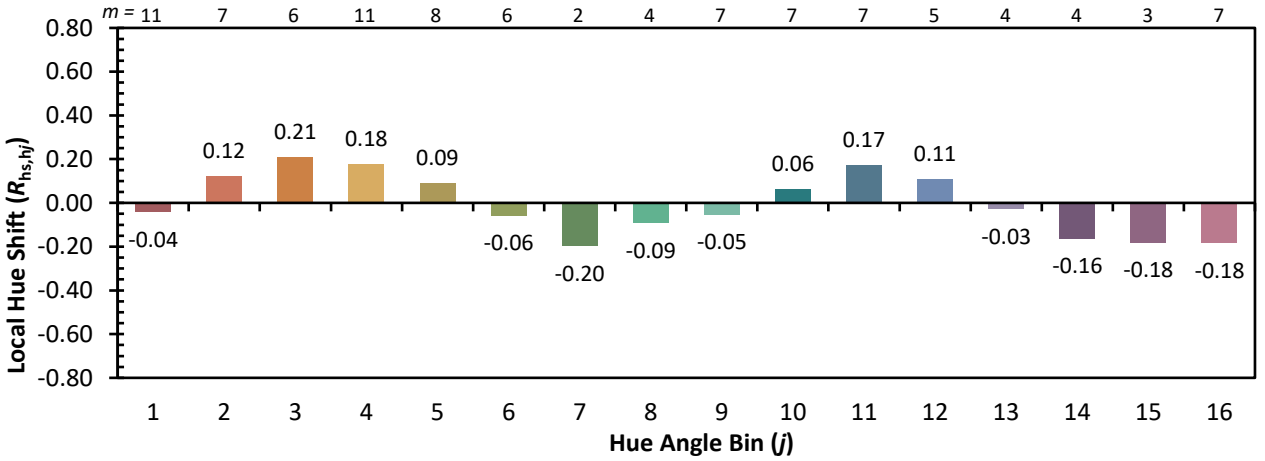
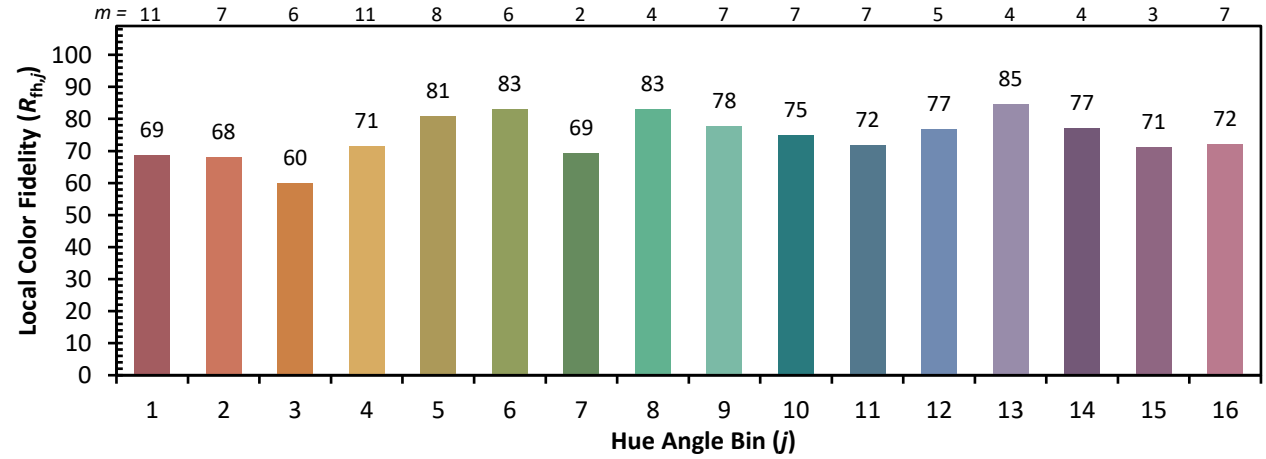
**TM-30-18**

## Color Rendition by Hue-Angle Bin



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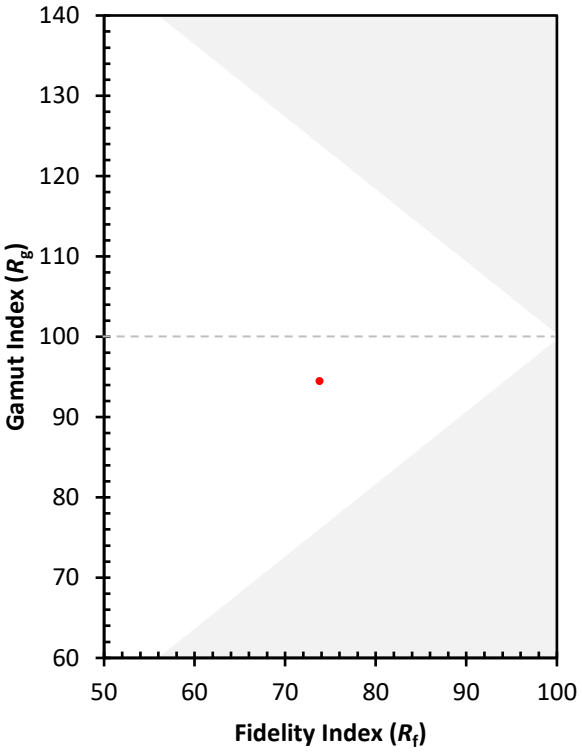
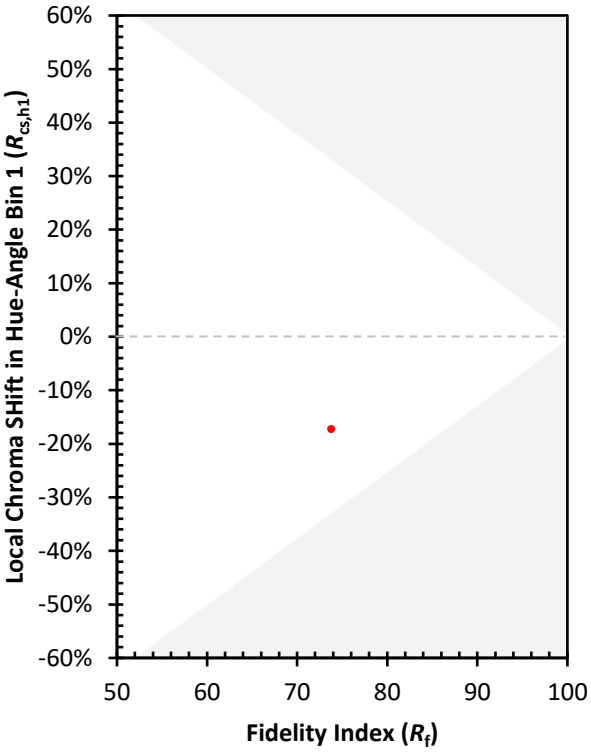
## Measure Comparisons




(END OF REPORT)