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: LUMARK

Report Number: P1067263

Luminaire Tested: **NAV-SA5C-735-U-T2BC**

Issue Date: 08/07/2025

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: | P1067263 |
| Test Lab: | INNOVATION CENTER(G3) |
| Issue Date: | 08/07/2025 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS (FORMERLY EATON) |
| Product Line: | LUMARK |
| Catalog Number: | NAV-SA5C-735-U-T2BC |
| Description: | Navion AREA AND ROADWAY LUMINAIRE 1050mA 5xLight Square PACKAGE 70CRI 3500K FIXTURE w/ TYPE II ANGLED BACKLIGHT CONTROL |
| Light Source: | (70) 3500K CCT, 70 CRI LEDS |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 25278.4 lumens |
| Efficiency: | N/A |
| Efficacy: | 107.1 lumens/watt |
| Luminous Opening: | Rectangular (W 1' x L: 1.5' x H: 0') |
| IES Classification: | Type II - Short |
| BUG Rating: | B0 - U0 - G4 |

| | |
|---|---|
| Input Watts (W): | 236 |
| 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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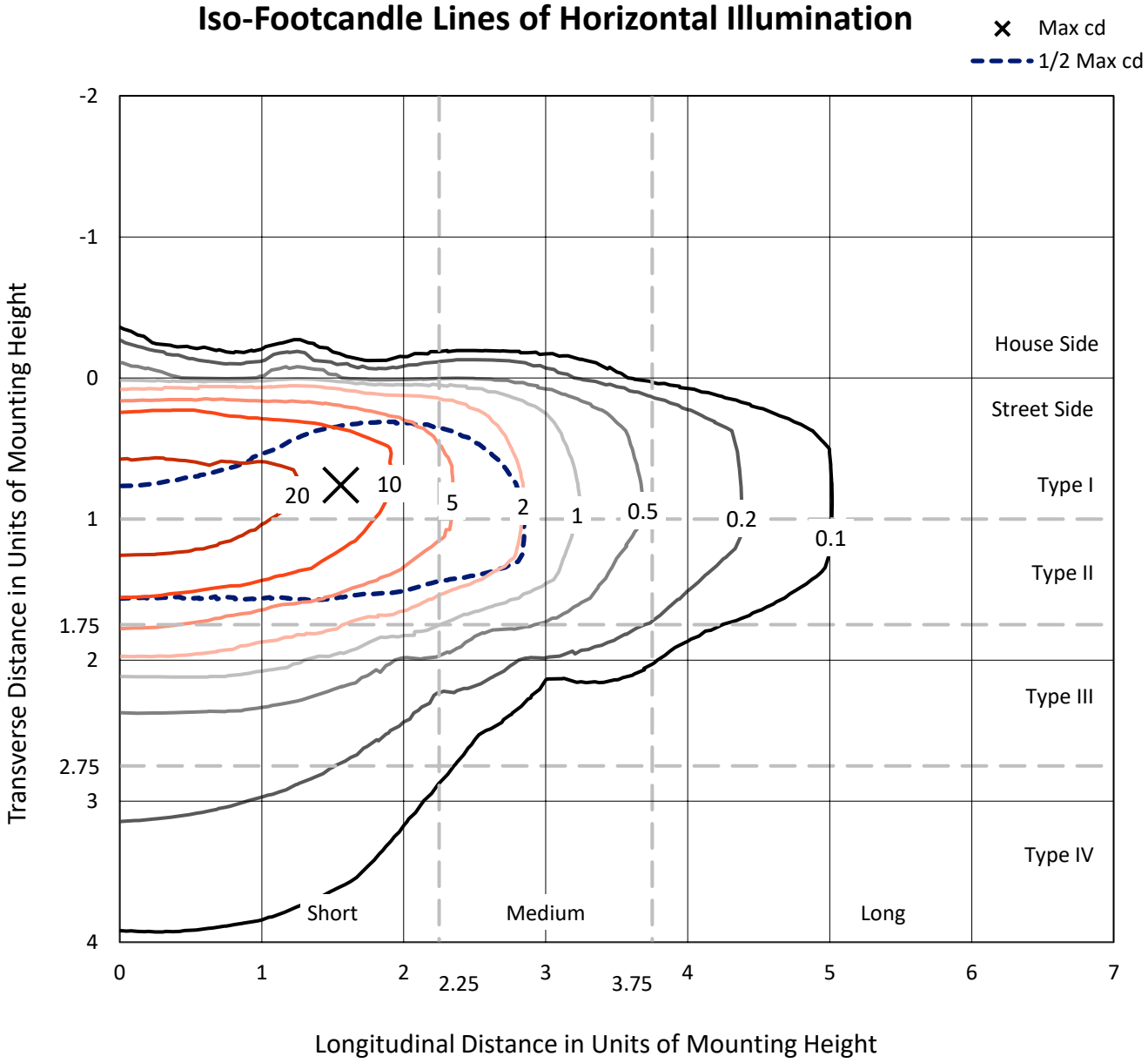
REPORT NUMBER: P1067263
CATALOG NUMBER: NAV-SA5C-735-U-T2BC

## Iso-Footcandle Lines of Horizontal Illumination




Based on 15 foot mounting height. Maximum calculated value = 36.3 fc
Type II - Short - N/A

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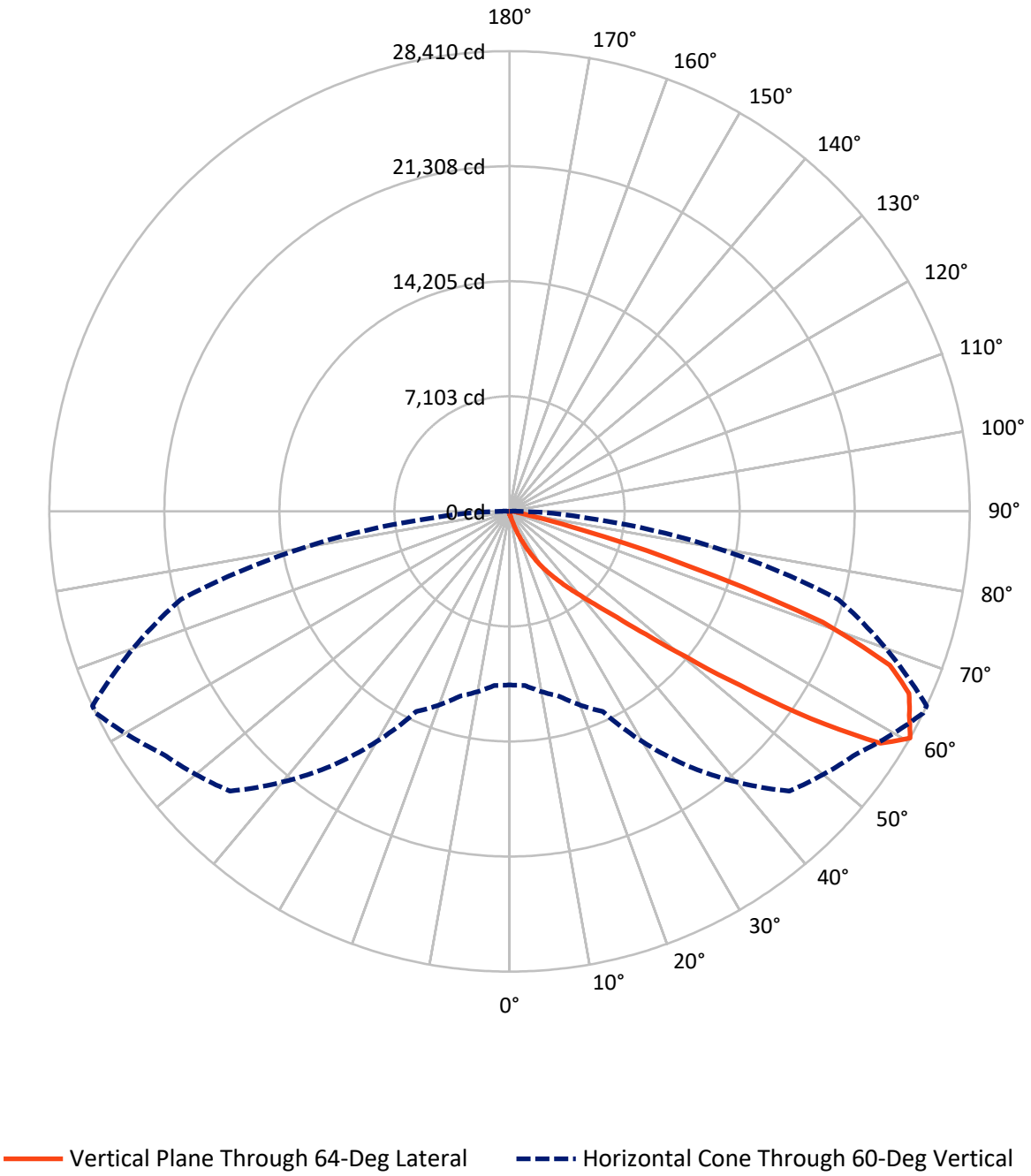
## Luminous Intensity Polar Plot



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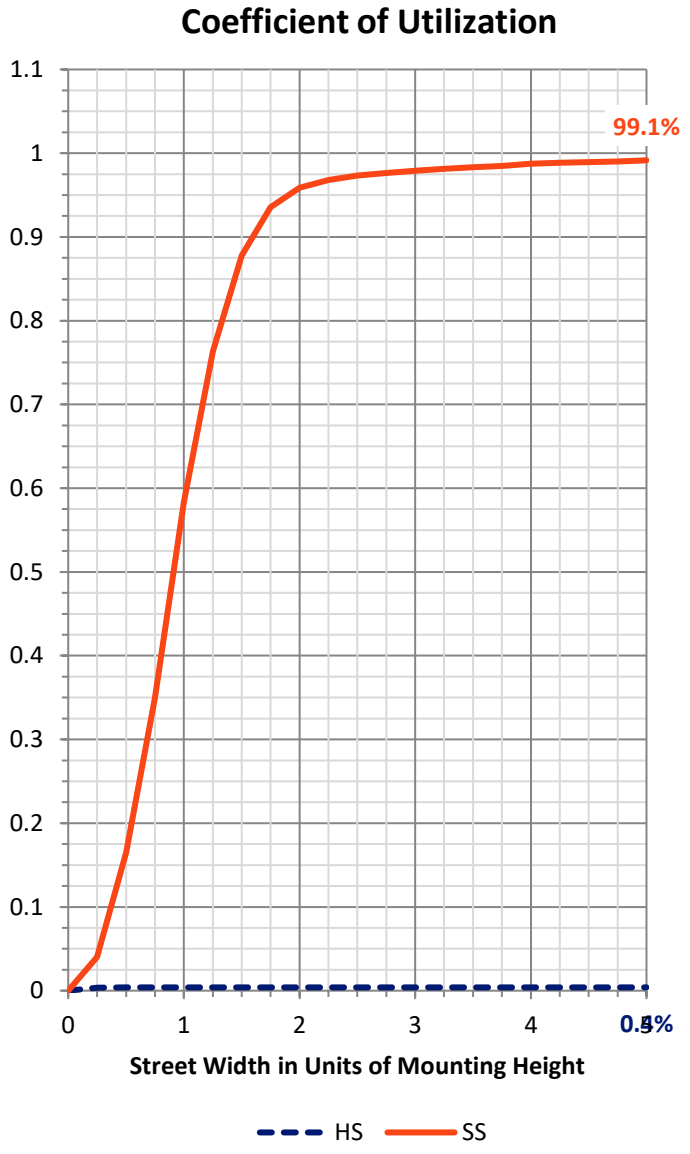
**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 102.5 | 0.0 | 102.5 |
| | % Fixture | 0.4 | 0.0 | 0.4 |
| **Street Side** | Lumens | 25175.9 | 0.0 | 25175.9 |
| | % Fixture | 99.6 | 0.0 | 99.6 |
| **Total** | Lumens | 25278.4 | 0.0 | 25278.4 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 25.2 | 0.1 |
| 10°-20° | 248.4 | 1.0 |
| 20°-30° | 825.0 | 3.3 |
| 30°-40° | 2201.4 | 8.7 |
| 40°-50° | 5595.4 | 22.1 |
| 50°-60° | 8156.9 | 32.3 |
| 60°-70° | 6300.4 | 24.9 |
| 70°-80° | 1730.2 | 6.8 |
| 80°-90° | 195.3 | 0.8 |
| 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° | 25278.4 | 100.0 |
| 0°-180° | 25278.4 | 100.0 |



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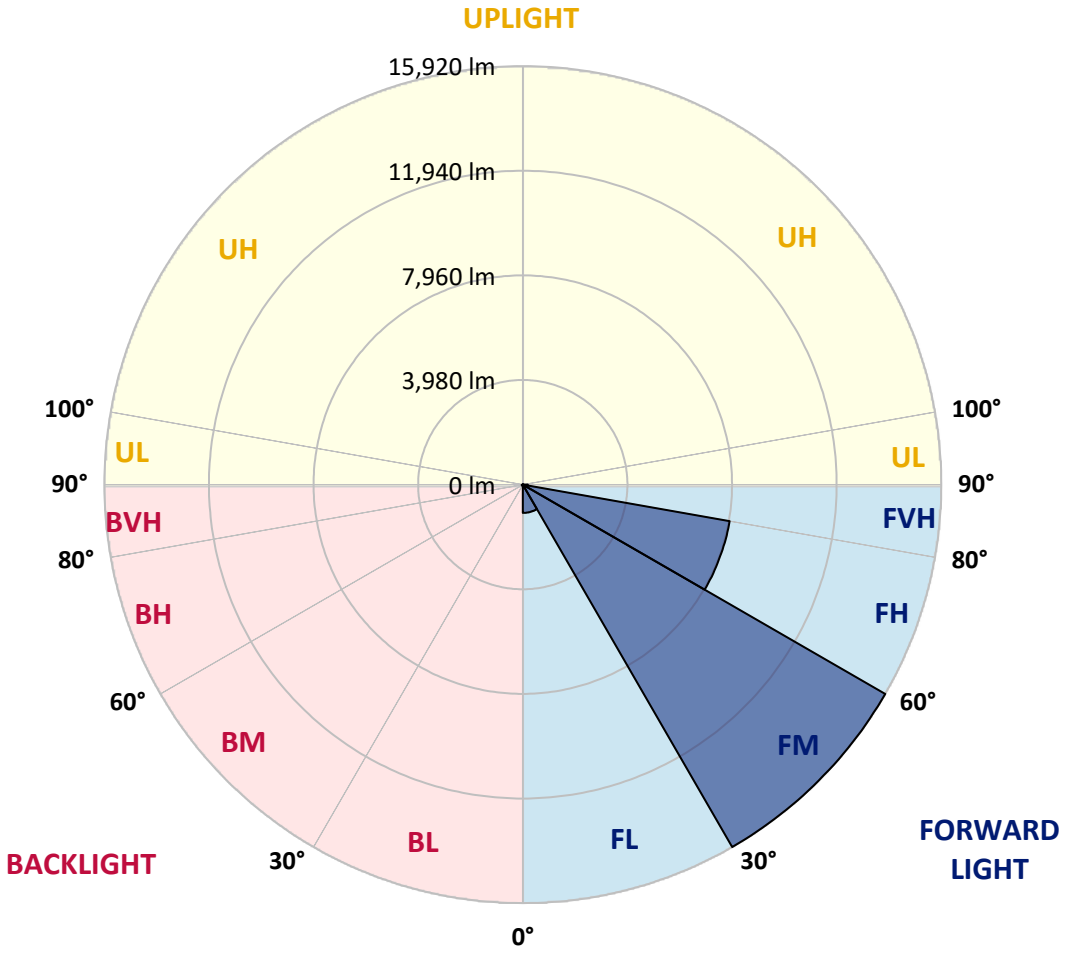
## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 1075.6 | 4.3 | | | |
| FM | (30°-60°) | 15919.8 | 63.0 | | | |
| FH | (60°-80°) | 7989.8 | 31.6 | | | G4/12000 |
| FVH | (80°-90°) | 190.7 | 0.8 | | | G2/225 |
| BL | (0°-30°) | 23.0 | 0.1 | B0/110 | | |
| BM | (30°-60°) | 34.0 | 0.1 | B0/220 | | |
| BH | (60°-80°) | 40.9 | 0.2 | B0/110 | | G0/110 |
| BVH | (80°-90°) | 4.6 | 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-G4**
Type II Short



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**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 64° | 65° | 75° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 167.0 | 167.0 | 167.0 | 167.0 | 167.0 | 167.0 | 167.0 | *167.0* | 167.0 | 167.0 | 167.0 |
| 2.5° | 222.7 | 222.7 | 222.7 | 215.7 | 208.7 | 208.7 | 201.8 | *194.8* | 194.8 | 180.9 | 174.0 |
| 5° | 341.0 | 341.0 | 327.0 | 313.1 | 292.2 | 264.4 | 236.6 | *215.7* | 215.7 | 194.8 | 180.9 |
| 7.5° | 668.0 | 688.9 | 626.2 | 549.7 | 445.3 | 375.7 | 299.2 | *250.5* | 243.5 | 208.7 | 180.9 |
| 10° | 1447.3 | 1433.4 | 1336.0 | 1148.1 | 904.6 | 654.1 | 417.5 | *306.2* | 292.2 | 222.7 | 180.9 |
| 12.5° | 2177.9 | 2198.8 | 2094.4 | 1885.7 | 1593.4 | 1162.0 | 716.7 | *396.6* | 382.7 | 243.5 | 180.9 |
| 15° | 2804.2 | 2804.2 | 2734.6 | 2630.2 | 2310.1 | 1857.8 | 1155.1 | *591.4* | 542.7 | 264.4 | 174.0 |
| 17.5° | 3235.6 | 3228.6 | 3200.8 | 3173.0 | 2985.1 | 2518.9 | 1767.4 | *946.3* | 835.0 | 313.1 | 174.0 |
| 20° | 3722.7 | 3701.8 | 3736.6 | 3680.9 | 3534.8 | 3166.0 | 2414.5 | *1405.6* | 1301.2 | 396.6 | 174.0 |
| 22.5° | 4230.6 | 4251.5 | 4279.3 | 4223.6 | 4063.6 | 3743.5 | 3096.4 | *1997.0* | 1885.7 | 549.7 | 180.9 |
| 25° | 4877.7 | 4863.8 | 4926.4 | 4877.7 | 4675.9 | 4300.2 | 3736.6 | *2644.1* | 2484.1 | 765.4 | 194.8 |
| 27.5° | 5671.0 | 5643.1 | 5684.9 | 5559.6 | 5295.2 | 4912.5 | 4307.1 | *3305.2* | 3117.3 | 1099.4 | 222.7 |
| 30° | 6721.6 | 6742.5 | 6554.6 | 6408.5 | 6032.8 | 5524.8 | 4940.3 | *4014.9* | 3820.1 | 1496.0 | 250.5 |
| 32.5° | 8377.7 | 8231.6 | 7939.3 | 7347.9 | 6853.9 | 6206.7 | 5573.5 | *4634.2* | 4460.2 | 2004.0 | 292.2 |
| 35° | 10959.2 | 10987.0 | 10346.9 | 8885.7 | 7814.1 | 7062.6 | 6269.4 | *5316.1* | 5190.8 | 2581.5 | 347.9 |
| 37.5° | 14104.3 | 14027.8 | 13464.2 | 11620.2 | 9219.7 | 8127.2 | 7062.6 | *6060.6* | 5879.7 | 3207.7 | 417.5 |
| 40° | 17666.9 | 17346.9 | 17019.8 | 15767.3 | 12149.1 | 9463.2 | 8064.6 | *6923.4* | 6784.3 | 3931.4 | 528.8 |
| 42.5° | 20519.8 | 20436.3 | 20492.0 | 19970.1 | 17033.7 | 11738.5 | 9393.6 | *7981.1* | 7814.1 | 4829.0 | 723.7 |
| 45° | 21925.4 | 21807.1 | 22141.1 | 22530.7 | 21779.2 | 16581.5 | 11536.7 | *9331.0* | 9108.3 | 5886.7 | 1022.9 |
| 47.5° | 21549.6 | 21466.1 | 22182.8 | 22948.2 | 23950.2 | 22196.7 | 15036.7 | *11348.9* | 10966.2 | 7243.5 | 1468.2 |
| 50° | 19698.7 | 19705.7 | 20881.6 | 22308.1 | 23894.5 | 25042.7 | 20220.6 | *14111.3* | 13631.2 | 9045.7 | 2164.0 |
| 52.5° | 17896.6 | 17952.2 | 19197.7 | 21278.3 | 23066.5 | 25376.7 | 24771.3 | *17833.9* | 17054.6 | 11168.0 | 2985.1 |
| 55° | 16045.7 | 16073.5 | 17172.9 | 20102.3 | 22676.9 | 24381.6 | 27109.3 | *22628.2* | 21800.1 | 13812.1 | 3785.3 |
| 57.5° | 14264.4 | 14264.4 | 14674.9 | 17277.3 | 22252.4 | 24291.2 | 26830.9 | *27011.8* | 26336.9 | 16831.9 | 4376.7 |
| 60° | *10715.7* | *10785.3* | *11808.1* | *13631.2* | *19190.8* | *24423.4* | *26121.2* | *28410.4* | *28410.4* | *21020.8* | *4829.0* |
| 62.5° | 5413.5 | 5517.9 | 6791.2 | 8565.6 | 13165.0 | 22600.3 | 26232.5 | *27707.7* | 27819.0 | 24715.6 | 5858.8 |
| 65° | 2539.8 | 2658.0 | 3339.9 | 4592.4 | 7083.5 | 15906.5 | 25077.4 | *27109.3* | 27074.5 | 24012.8 | 8029.8 |
| 67.5° | 1823.1 | 1857.8 | 2087.5 | 2678.9 | 3813.1 | 6972.1 | 19142.1 | *25321.0* | 25334.9 | 20401.5 | 9233.6 |
| 70° | 1635.2 | 1635.2 | 1690.8 | 1864.8 | 2296.2 | 3117.3 | 9303.1 | *20505.9* | 21500.9 | 15753.4 | 8558.6 |
| 72.5° | 1614.3 | 1600.4 | 1586.5 | 1593.4 | 1551.7 | 1565.6 | 3193.8 | *11578.5* | 12998.0 | 11021.8 | 6826.0 |
| 75° | 1572.6 | 1572.6 | 1558.6 | 1509.9 | 1238.6 | 1008.9 | 1099.4 | *4682.9* | 5413.5 | 7361.8 | 5065.6 |
| 77.5° | 1245.5 | 1370.8 | 1516.9 | 1426.4 | 1134.2 | 758.4 | 640.2 | *1356.9* | 1711.7 | 4515.9 | 3673.9 |
| 80° | 577.5 | 584.5 | 577.5 | 605.4 | 723.7 | 542.7 | 473.2 | *661.0* | 668.0 | 2505.0 | 2275.3 |
| 82.5° | 417.5 | 424.5 | 403.6 | 361.8 | 320.1 | 292.2 | 389.7 | *487.1* | 521.9 | 1148.1 | 848.9 |
| 85° | 125.2 | 118.3 | 139.2 | 187.9 | 222.7 | 257.5 | 327.0 | *410.5* | 431.4 | 424.5 | 125.2 |
| 87.5° | 55.7 | 55.7 | 69.6 | 97.4 | 132.2 | 194.8 | 285.3 | *375.7* | 382.7 | 438.4 | 34.8 |
| 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: P1067263
CATALOG NUMBER: NAV-SA5C-735-U-T2BC

**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 167.0 | 167.0 | 167.0 | 167.0 | 167.0 | 167.0 | 167.0 | 167.0 | 167.0 | 167.0 | 167.0 |
| 2.5° | 174.0 | 167.0 | 160.0 | 153.1 | 146.1 | 139.2 | 132.2 | 132.2 | 139.2 | 139.2 | 139.2 |
| 5° | 167.0 | 160.0 | 146.1 | 132.2 | 125.2 | 118.3 | 111.3 | 111.3 | 118.3 | 118.3 | 118.3 |
| 7.5° | 167.0 | 153.1 | 139.2 | 125.2 | 111.3 | 104.4 | 97.4 | 97.4 | 97.4 | 104.4 | 104.4 |
| 10° | 167.0 | 153.1 | 132.2 | 111.3 | 97.4 | 90.5 | 83.5 | 76.5 | 83.5 | 83.5 | 83.5 |
| 12.5° | 160.0 | 146.1 | 125.2 | 104.4 | 83.5 | 69.6 | 62.6 | 62.6 | 62.6 | 62.6 | 62.6 |
| 15° | 153.1 | 139.2 | 118.3 | 90.5 | 69.6 | 55.7 | 41.7 | 41.7 | 41.7 | 48.7 | 48.7 |
| 17.5° | 146.1 | 132.2 | 104.4 | 69.6 | 48.7 | 34.8 | 27.8 | 27.8 | 27.8 | 34.8 | 34.8 |
| 20° | 146.1 | 125.2 | 90.5 | 55.7 | 34.8 | 20.9 | 13.9 | 13.9 | 13.9 | 20.9 | 27.8 |
| 22.5° | 146.1 | 125.2 | 83.5 | 41.7 | 20.9 | 13.9 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 |
| 25° | 146.1 | 118.3 | 76.5 | 34.8 | 13.9 | 7.0 | 0.0 | 0.0 | 7.0 | 13.9 | 20.9 |
| 27.5° | 146.1 | 111.3 | 62.6 | 20.9 | 13.9 | 7.0 | 0.0 | 7.0 | 13.9 | 13.9 | 13.9 |
| 30° | 146.1 | 111.3 | 55.7 | 20.9 | 7.0 | 0.0 | 0.0 | 7.0 | 13.9 | 13.9 | 20.9 |
| 32.5° | 153.1 | 104.4 | 48.7 | 13.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 35° | 160.0 | 97.4 | 41.7 | 13.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 37.5° | 174.0 | 97.4 | 27.8 | 7.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 40° | 194.8 | 104.4 | 27.8 | 7.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 42.5° | 243.5 | 111.3 | 20.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 45° | 341.0 | 139.2 | 20.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 47.5° | 501.0 | 208.7 | 20.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 50° | 730.6 | 285.3 | 13.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 52.5° | 897.6 | 285.3 | 13.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 55° | 890.7 | 180.9 | 7.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 57.5° | 681.9 | 125.2 | 7.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 60° | *577.5* | *90.5* | *7.0* | *0.0* | *0.0* | *0.0* | *0.0* | *0.0* | *0.0* | *0.0* | *0.0* |
| 62.5° | 695.8 | 69.6 | 7.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 65° | 1238.6 | 62.6 | 7.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 67.5° | 1990.1 | 62.6 | 7.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 70° | 2226.6 | 62.6 | 7.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 72.5° | 1739.6 | 55.7 | 7.0 | 7.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 75° | 953.3 | 48.7 | 7.0 | 7.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 77.5° | 480.1 | 34.8 | 13.9 | 7.0 | 7.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 80° | 201.8 | 27.8 | 13.9 | 7.0 | 7.0 | 7.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 82.5° | 69.6 | 27.8 | 13.9 | 13.9 | 7.0 | 7.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 34.8 | 20.9 | 20.9 | 13.9 | 13.9 | 7.0 | 7.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 20.9 | 20.9 | 20.9 | 13.9 | 13.9 | 7.0 | 7.0 | 0.0 | 0.0 | 0.0 | 7.0 |
| 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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# LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-5

Test Date: 10/10/2024

Luminaire Tested: GSS-SB1A-735-U-5WQ

Data in this report applies to families of products including GSS-SB1A-735-U-5WQ

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

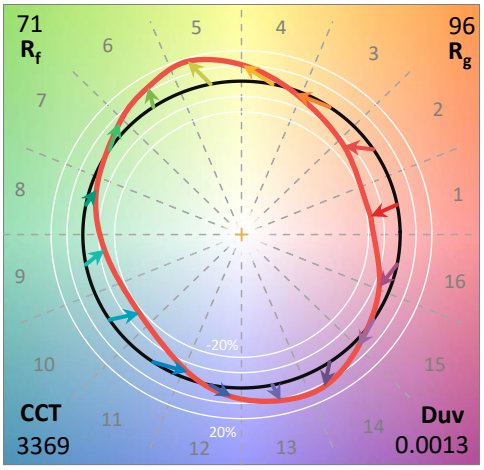
## Test Information

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | SP1-2407-184-5 |
| 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-735-U-5WQ** |
| Description: | GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI 3500K CCT 26 LEDS |

## Spectral Parameters

| | |
|---|---|
| CCT (K): | 3369 |
| CIE u': | 0.2386 |
| CIE v': | 0.5156 |
| Duv: | 0.0013 |
| CIE x: | 0.4143 |
| CIE y: | 0.3980 |
| CIE z: | 0.1877 |
| Peak Wavelength (nm): | 590 |
| Dominant Wavelength (nm): | 580 |
| Purity: | 43.80166 |
| Rf: | 71.4 |
| Rg: | 96 |

| | |
|---|---|
| CRI (Ra): | 70.1 |
| R1: | 66.6 |
| R2: | 77.6 |
| R3: | 88.5 |
| R4: | 69.5 |
| R5: | 66.4 |
| R6: | 69.6 |
| R7: | 77.5 |
| R8: | 44.9 |
| R9: | -40.2 |
| R10: | 49.1 |
| R11: | 66.3 |
| R12: | 45.7 |
| R13: | 68.0 |
| R14: | 93.4 |
| R15: | 57.6 |




## Test Conditions

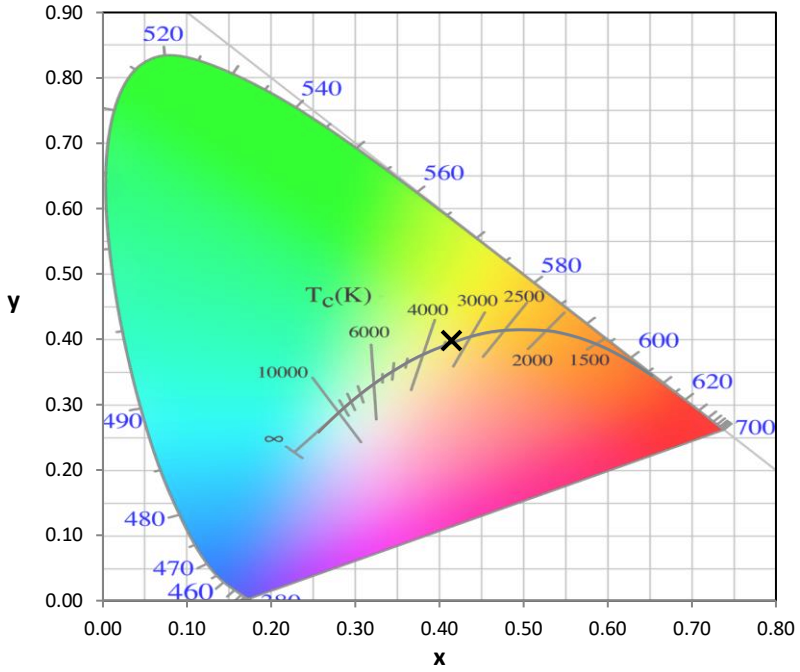
| | |
|---|---|
| Stabilization Time: | 21M |
| Operation Time: | 1H 21M |
| Sphere Temperature (°C): | 25.2 |

REPORT NUMBER: SP1-2407-184-5

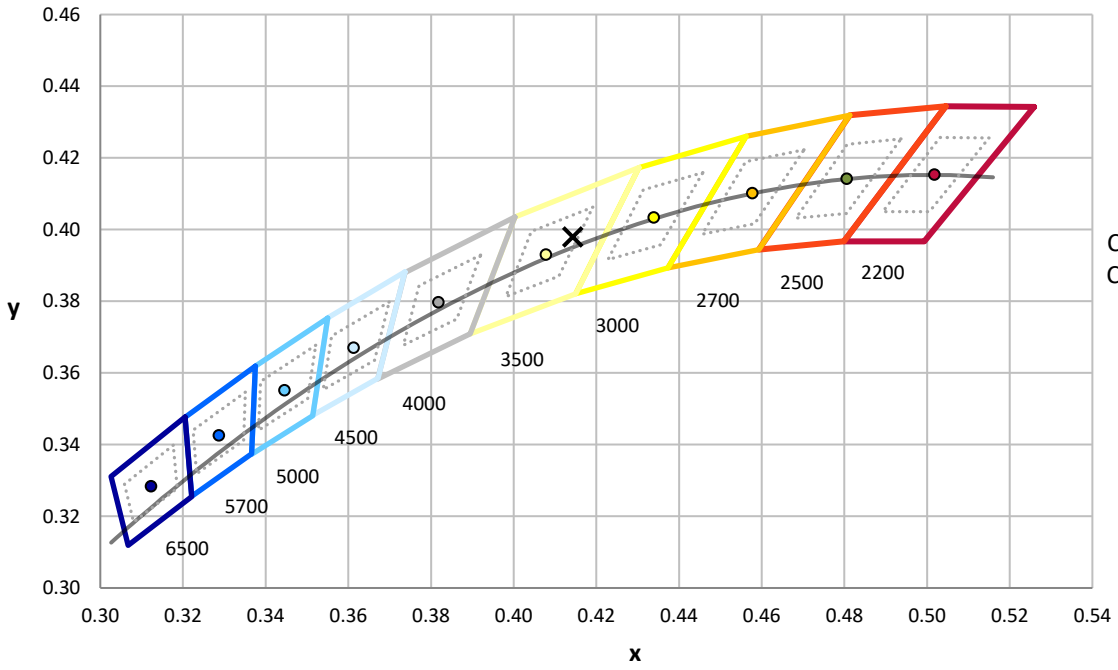
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 2/8/2024 | 2/8/2025 |
| AC Power Source | IN0063 | 10/24/2023 | 10/24/2024 |
| DC 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: SP1-2407-184-5

**CIE 1931 Chromaticity Diagram**




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




CCT = 3369K
CIE x = 0.4143
CIE y = 0.3980
Duv = 0.0013

Point lies inside the ANSI 3500K 4-step quadrangle

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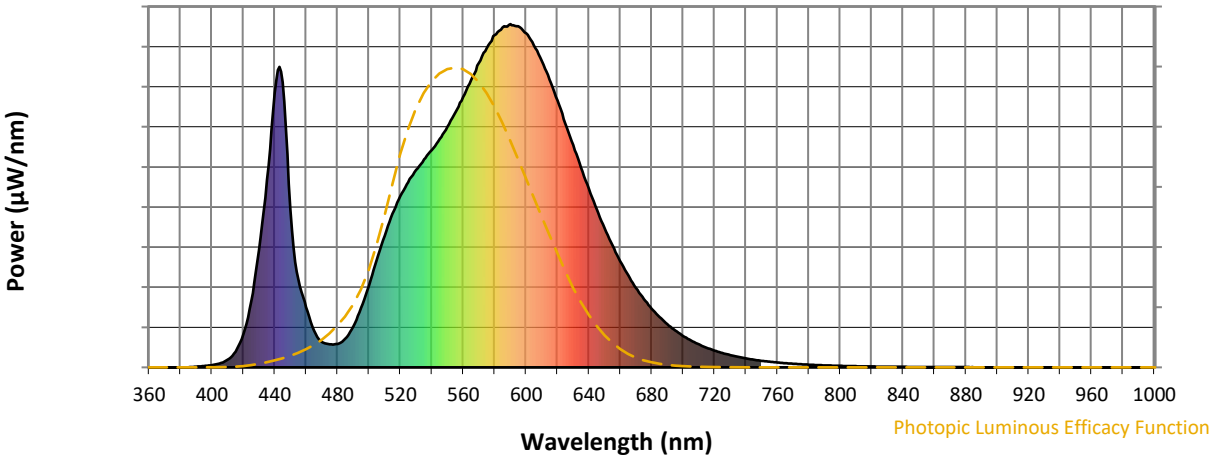
## Photopic Flux vs. Wavelength




## 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 | 119 | NR | 620 | 778 | NR | 750 | 19 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 173 | NR | 625 | 711 | NR | 755 | 16 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 239 | NR | 630 | 648 | NR | 760 | 14 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 313 | NR | 635 | 582 | NR | 765 | 12 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 383 | NR | 640 | 520 | NR | 770 | 11 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 448 | NR | 645 | 460 | NR | 775 | 9 | NR | 905 | 0 | NR |
| 390 | 2 | NR | 520 | 500 | NR | 650 | 406 | NR | 780 | 8 | NR | 910 | 0 | NR |
| 395 | 4 | NR | 525 | 539 | NR | 655 | 355 | NR | 785 | 7 | NR | 915 | 0 | NR |
| 400 | 6 | NR | 530 | 575 | NR | 660 | 309 | NR | 790 | 6 | NR | 920 | 0 | NR |
| 405 | 11 | NR | 535 | 606 | NR | 665 | 269 | NR | 795 | 5 | NR | 925 | 0 | NR |
| 410 | 22 | NR | 540 | 633 | NR | 670 | 231 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 45 | NR | 545 | 666 | NR | 675 | 199 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 96 | NR | 550 | 701 | NR | 680 | 171 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 193 | NR | 555 | 743 | NR | 685 | 147 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 341 | NR | 560 | 788 | NR | 690 | 126 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 547 | NR | 565 | 837 | NR | 695 | 107 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 799 | NR | 570 | 887 | NR | 700 | 92 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 831 | NR | 575 | 931 | NR | 705 | 78 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 461 | NR | 580 | 967 | NR | 710 | 67 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 256 | NR | 585 | 990 | NR | 715 | 57 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 176 | NR | 590 | 1000 | NR | 720 | 49 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 107 | NR | 595 | 994 | NR | 725 | 42 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 74 | NR | 600 | 973 | NR | 730 | 36 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 67 | NR | 605 | 938 | NR | 735 | 31 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 68 | NR | 610 | 892 | NR | 740 | 26 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 84 | NR | 615 | 838 | NR | 745 | 22 | NR | 875 | 1 | NR | | | |

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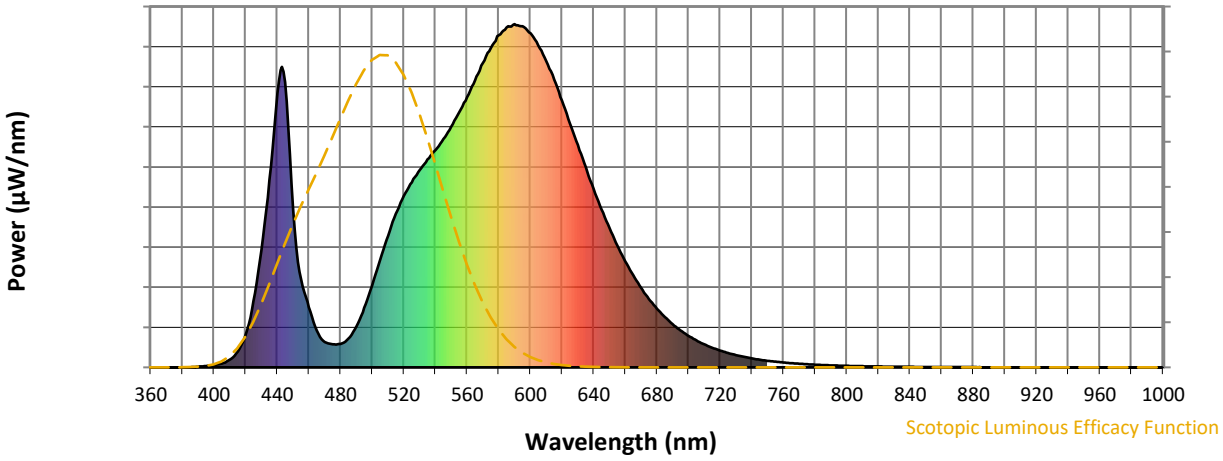
## Scotopic Flux vs. Wavelength




**Scotopic Lumens: NR** **S/P: 1.29**

| 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 | 119 | NR | 620 | 778 | NR | 750 | 19 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 173 | NR | 625 | 711 | NR | 755 | 16 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 239 | NR | 630 | 648 | NR | 760 | 14 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 313 | NR | 635 | 582 | NR | 765 | 12 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 383 | NR | 640 | 520 | NR | 770 | 11 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 448 | NR | 645 | 460 | NR | 775 | 9 | NR | 905 | 0 | NR |
| 390 | 2 | NR | 520 | 500 | NR | 650 | 406 | NR | 780 | 8 | NR | 910 | 0 | NR |
| 395 | 4 | NR | 525 | 539 | NR | 655 | 355 | NR | 785 | 7 | NR | 915 | 0 | NR |
| 400 | 6 | NR | 530 | 575 | NR | 660 | 309 | NR | 790 | 6 | NR | 920 | 0 | NR |
| 405 | 11 | NR | 535 | 606 | NR | 665 | 269 | NR | 795 | 5 | NR | 925 | 0 | NR |
| 410 | 22 | NR | 540 | 633 | NR | 670 | 231 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 45 | NR | 545 | 666 | NR | 675 | 199 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 96 | NR | 550 | 701 | NR | 680 | 171 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 193 | NR | 555 | 743 | NR | 685 | 147 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 341 | NR | 560 | 788 | NR | 690 | 126 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 547 | NR | 565 | 837 | NR | 695 | 107 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 799 | NR | 570 | 887 | NR | 700 | 92 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 831 | NR | 575 | 931 | NR | 705 | 78 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 461 | NR | 580 | 967 | NR | 710 | 67 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 256 | NR | 585 | 990 | NR | 715 | 57 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 176 | NR | 590 | 1000 | NR | 720 | 49 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 107 | NR | 595 | 994 | NR | 725 | 42 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 74 | NR | 600 | 973 | NR | 730 | 36 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 67 | NR | 605 | 938 | NR | 735 | 31 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 68 | NR | 610 | 892 | NR | 740 | 26 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 84 | NR | 615 | 838 | NR | 745 | 22 | NR | 875 | 1 | NR | | | |

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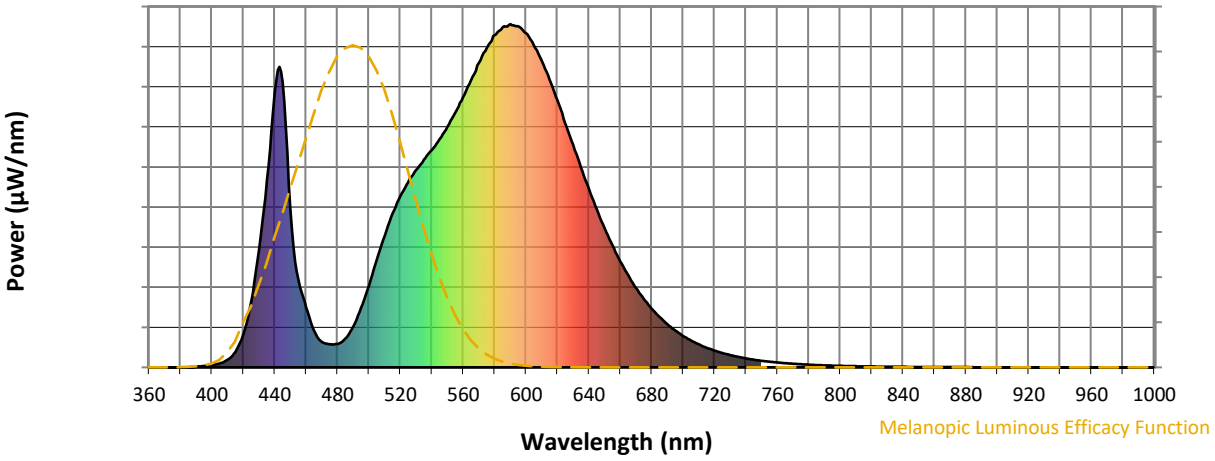
## Melanopic Flux vs. Wavelength




**Melanopic Lumens: NR** **M/P: 2.36**

| 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 | 119 | NR | 620 | 778 | NR | 750 | 19 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 173 | NR | 625 | 711 | NR | 755 | 16 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 239 | NR | 630 | 648 | NR | 760 | 14 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 313 | NR | 635 | 582 | NR | 765 | 12 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 383 | NR | 640 | 520 | NR | 770 | 11 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 448 | NR | 645 | 460 | NR | 775 | 9 | NR | 905 | 0 | NR |
| 390 | 2 | NR | 520 | 500 | NR | 650 | 406 | NR | 780 | 8 | NR | 910 | 0 | NR |
| 395 | 4 | NR | 525 | 539 | NR | 655 | 355 | NR | 785 | 7 | NR | 915 | 0 | NR |
| 400 | 6 | NR | 530 | 575 | NR | 660 | 309 | NR | 790 | 6 | NR | 920 | 0 | NR |
| 405 | 11 | NR | 535 | 606 | NR | 665 | 269 | NR | 795 | 5 | NR | 925 | 0 | NR |
| 410 | 22 | NR | 540 | 633 | NR | 670 | 231 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 45 | NR | 545 | 666 | NR | 675 | 199 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 96 | NR | 550 | 701 | NR | 680 | 171 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 193 | NR | 555 | 743 | NR | 685 | 147 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 341 | NR | 560 | 788 | NR | 690 | 126 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 547 | NR | 565 | 837 | NR | 695 | 107 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 799 | NR | 570 | 887 | NR | 700 | 92 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 831 | NR | 575 | 931 | NR | 705 | 78 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 461 | NR | 580 | 967 | NR | 710 | 67 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 256 | NR | 585 | 990 | NR | 715 | 57 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 176 | NR | 590 | 1000 | NR | 720 | 49 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 107 | NR | 595 | 994 | NR | 725 | 42 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 74 | NR | 600 | 973 | NR | 730 | 36 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 67 | NR | 605 | 938 | NR | 735 | 31 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 68 | NR | 610 | 892 | NR | 740 | 26 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 84 | NR | 615 | 838 | NR | 745 | 22 | NR | 875 | 1 | NR | | | |

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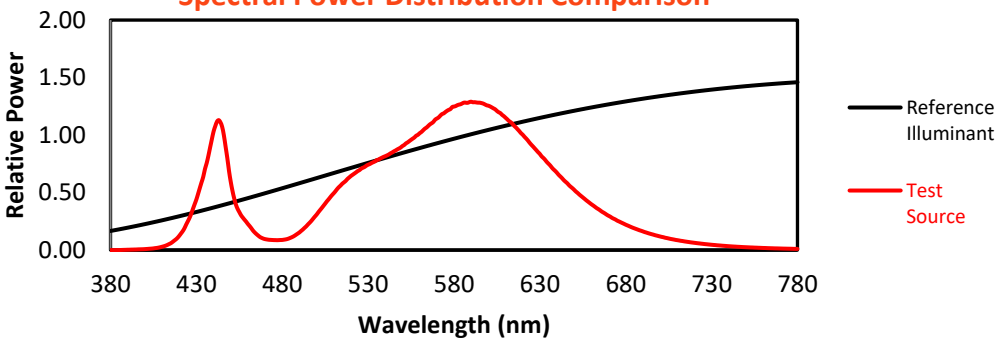
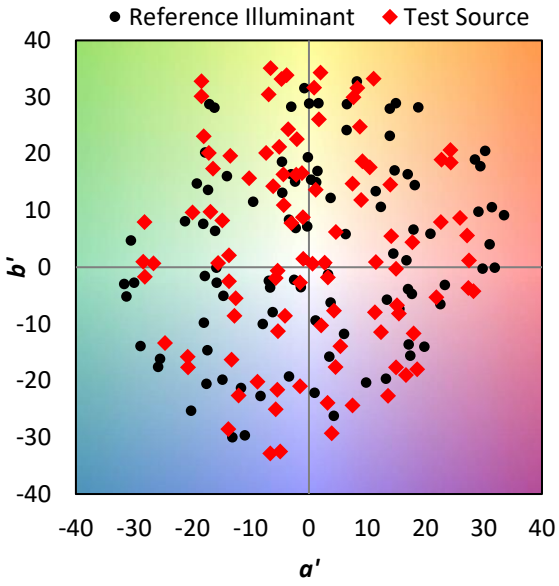
## Summary

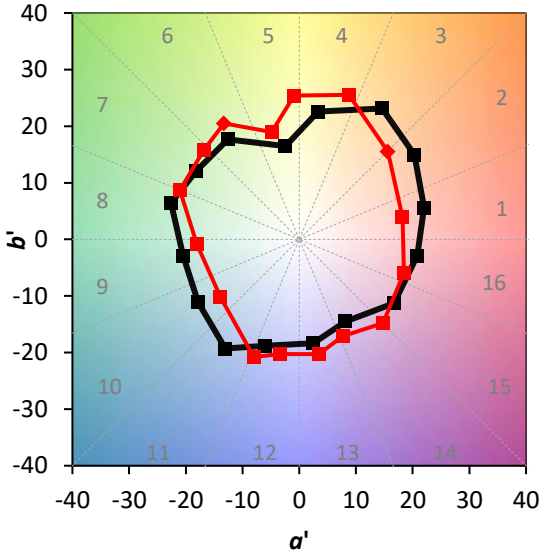
$R_f$ = 71.4
$R_g$ = 96
CIE $R_a$ = 70.1
$R_9$ = -40.2

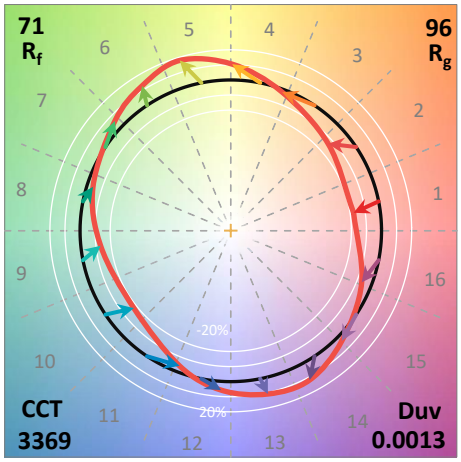
## Spectral Power Distribution Comparison

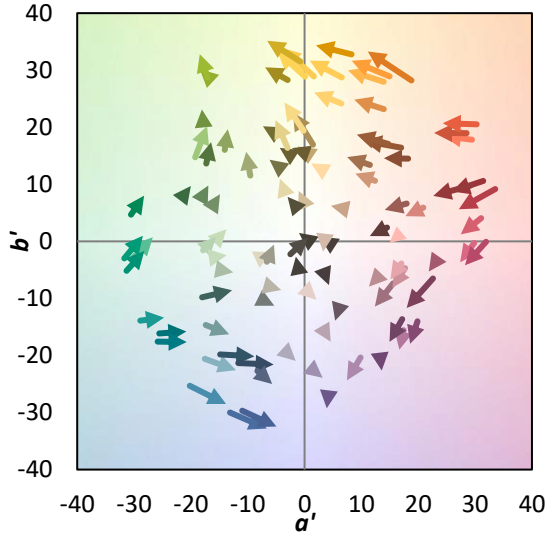



## Color Vector Graphics



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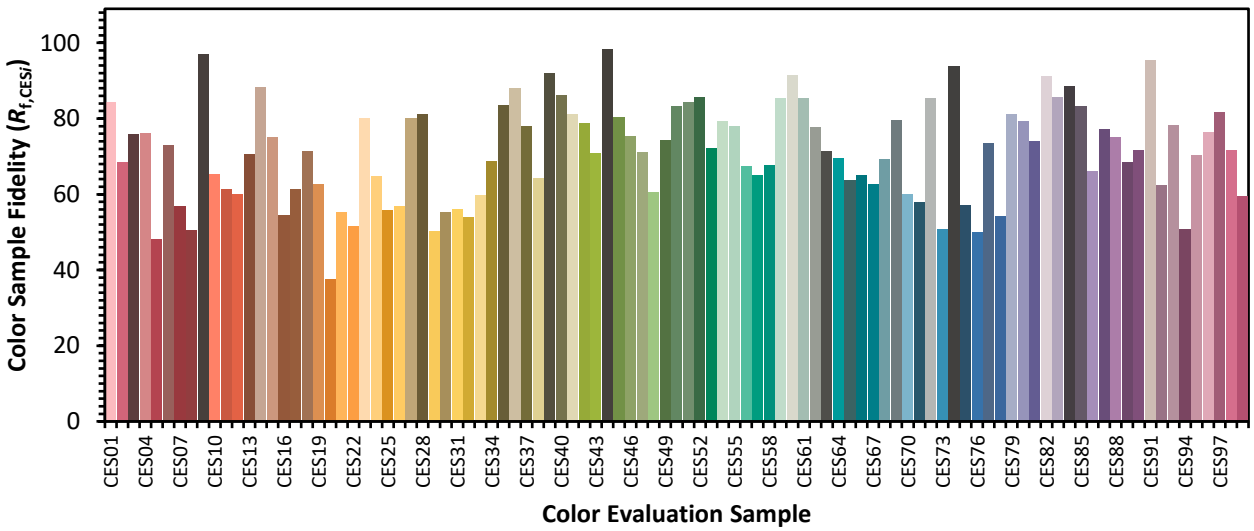
## Individual Sample Fidelity Index ($R_{f,i}$)

| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 57 | CES51 = 84 | CES76 = 50 |
| CES02 = 62 | CES27 = 80 | CES52 = 86 | CES77 = 74 |
| CES03 = 31 | CES28 = 81 | CES53 = 72 | CES78 = 54 |
| CES04 = 70 | CES29 = 50 | CES54 = 79 | CES79 = 81 |
| CES05 = 48 | CES30 = 55 | CES55 = 78 | CES80 = 79 |
| CES06 = 51 | CES31 = 56 | CES56 = 67 | CES81 = 74 |
| CES07 = 40 | CES32 = 54 | CES57 = 65 | CES82 = 91 |
| CES08 = 39 | CES33 = 60 | CES58 = 68 | CES83 = 86 |
| CES09 = 29 | CES34 = 69 | CES59 = 85 | CES84 = 89 |
| CES10 = 75 | CES35 = 83 | CES60 = 91 | CES85 = 83 |
| CES11 = 58 | CES36 = 88 | CES61 = 85 | CES86 = 66 |
| CES12 = 64 | CES37 = 78 | CES62 = 78 | CES87 = 77 |
| CES13 = 43 | CES38 = 64 | CES63 = 71 | CES88 = 75 |
| CES14 = 74 | CES39 = 92 | CES64 = 70 | CES89 = 68 |
| CES15 = 71 | CES40 = 86 | CES65 = 64 | CES90 = 72 |
| CES16 = 47 | CES41 = 81 | CES66 = 65 | CES91 = 95 |
| CES17 = 50 | CES42 = 79 | CES67 = 63 | CES92 = 62 |
| CES18 = 56 | CES43 = 71 | CES68 = 69 | CES93 = 78 |
| CES19 = 72 | CES44 = 98 | CES69 = 80 | CES94 = 51 |
| CES20 = 65 | CES45 = 80 | CES70 = 60 | CES95 = 70 |
| CES21 = 87 | CES46 = 75 | CES71 = 58 | CES96 = 76 |
| CES22 = 79 | CES47 = 71 | CES72 = 85 | CES97 = 82 |
| CES23 = 92 | CES48 = 61 | CES73 = 51 | CES98 = 72 |
| CES24 = 91 | CES49 = 74 | CES74 = 94 | CES99 = 60 |
| CES25 = 72 | CES50 = 83 | CES75 = 57 | |



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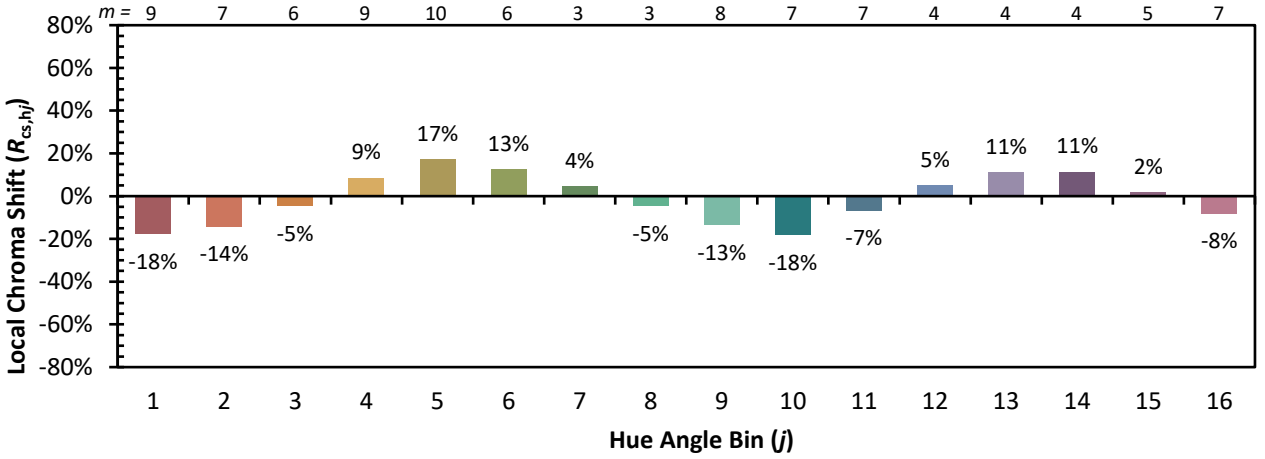
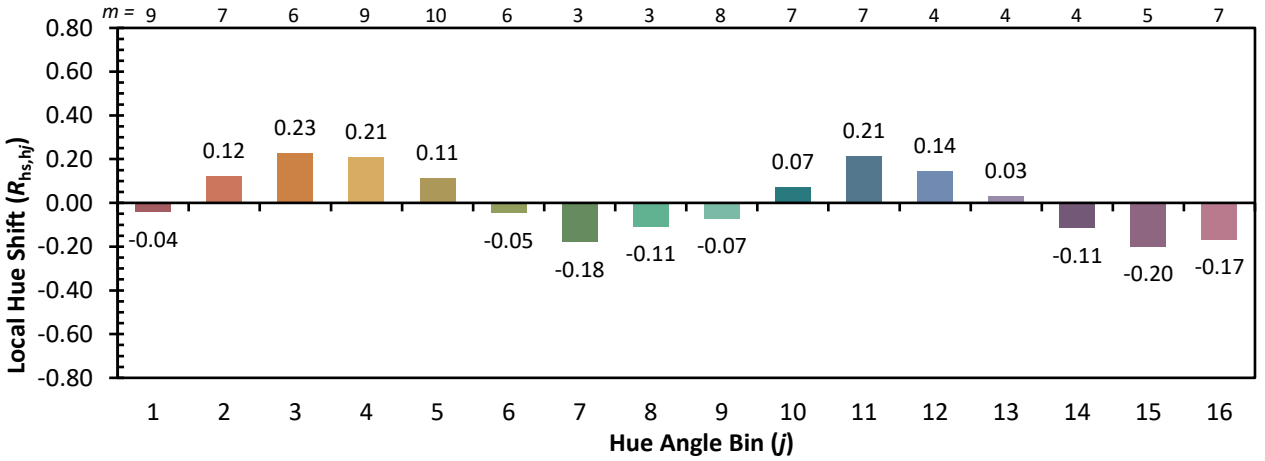
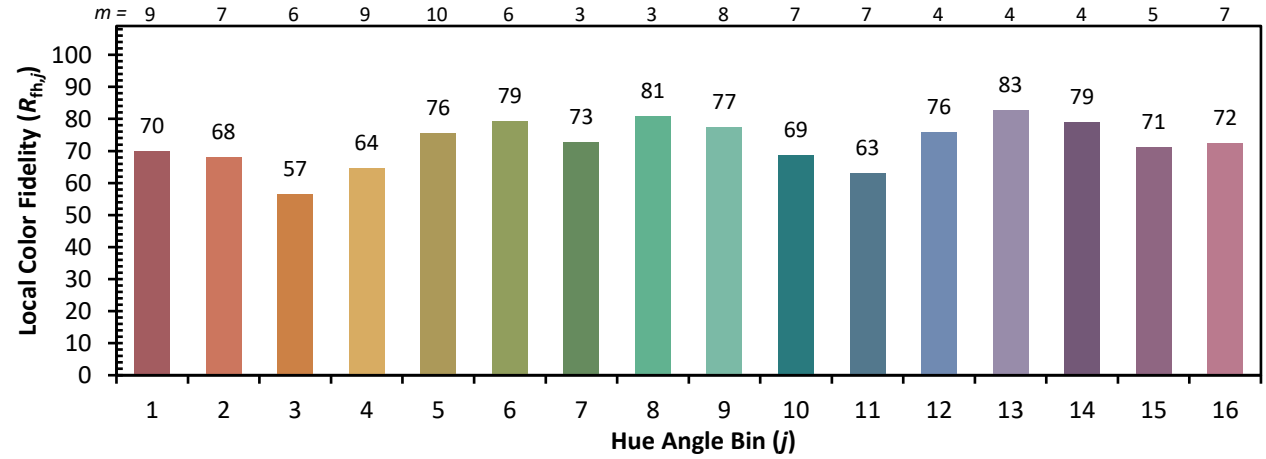
**TM-30-18**

## Color Rendition by Hue-Angle Bin



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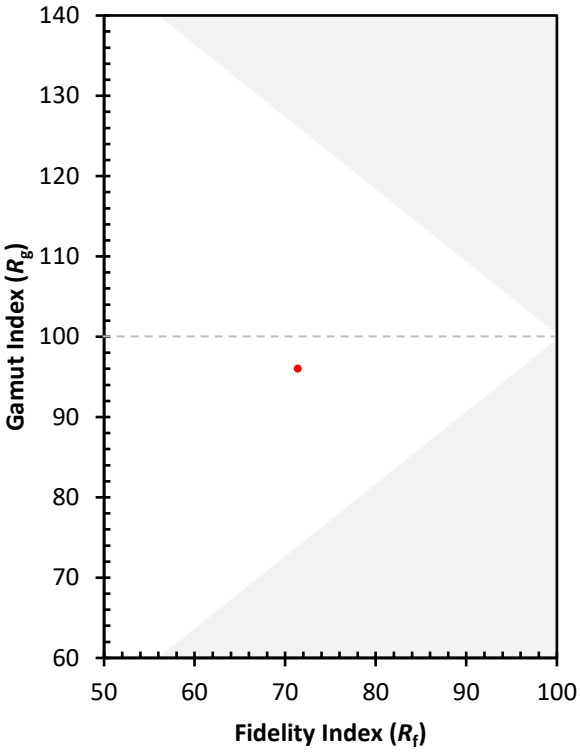
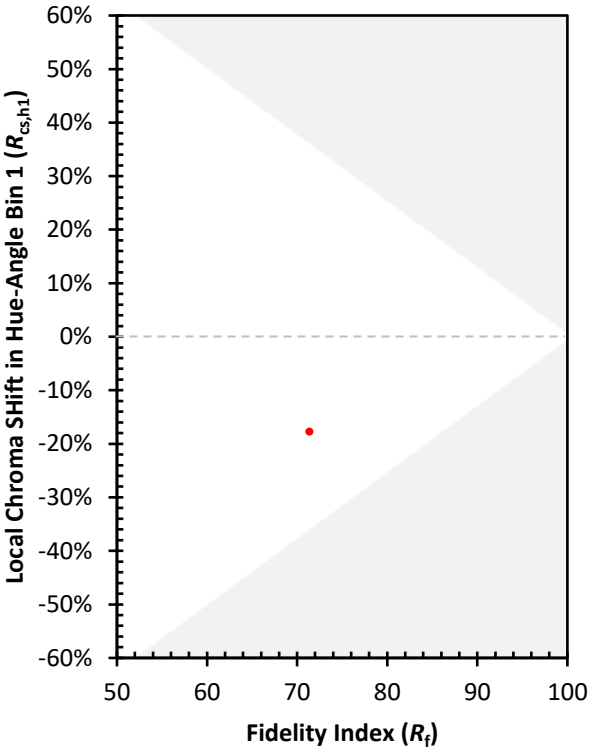
## Measure Comparisons




(END OF REPORT)