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: P324752

Luminaire Tested: **GLEON-SA8A-730-U-AFL-HSS**

Issue Date: 3/3/2020

Report Generated By E0585644

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: | P324752 |
| | TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-30) |
| Test Lab: | INNOVATION CENTER |
| Issue Date: | 3/3/2020 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS (FORMERLY EATON) |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | GLEON-SA8A-730-U-AFL-HSS |
| Description: | GALLEON AREA AND ROADWAY LUMINAIRE |
| | (8) 70 CRI, 3000K, 615mA LIGHTSQUARES WITH 16 LEDS EACH AND AUTOMOTIVE FRONTLINE OPTICS WITH HOUSE SIDE SHIELD |
| Light Source: | - |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 27843 lumens |
| Efficiency: | N/A |
| Efficacy: | 108.3 lumens/watt |
| Luminous Opening: | Rectangular (W 2' x L: 1' x H: 0') |
| IES Classification: | Type II - Short |
| BUG Rating: | B2 - U0 - G2 |

| | |
|---|---|
| Input Watts (W): | 257 |
| Input Voltage (V): | NR |
| Input Current (Ain): | NR |
| Voltage Rise (V): | NR |
| Power Factor: | NR |
| Total Harmonic Distortion (THDi): | NR |
| Frequency (hertz): | 60 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 24 FT |

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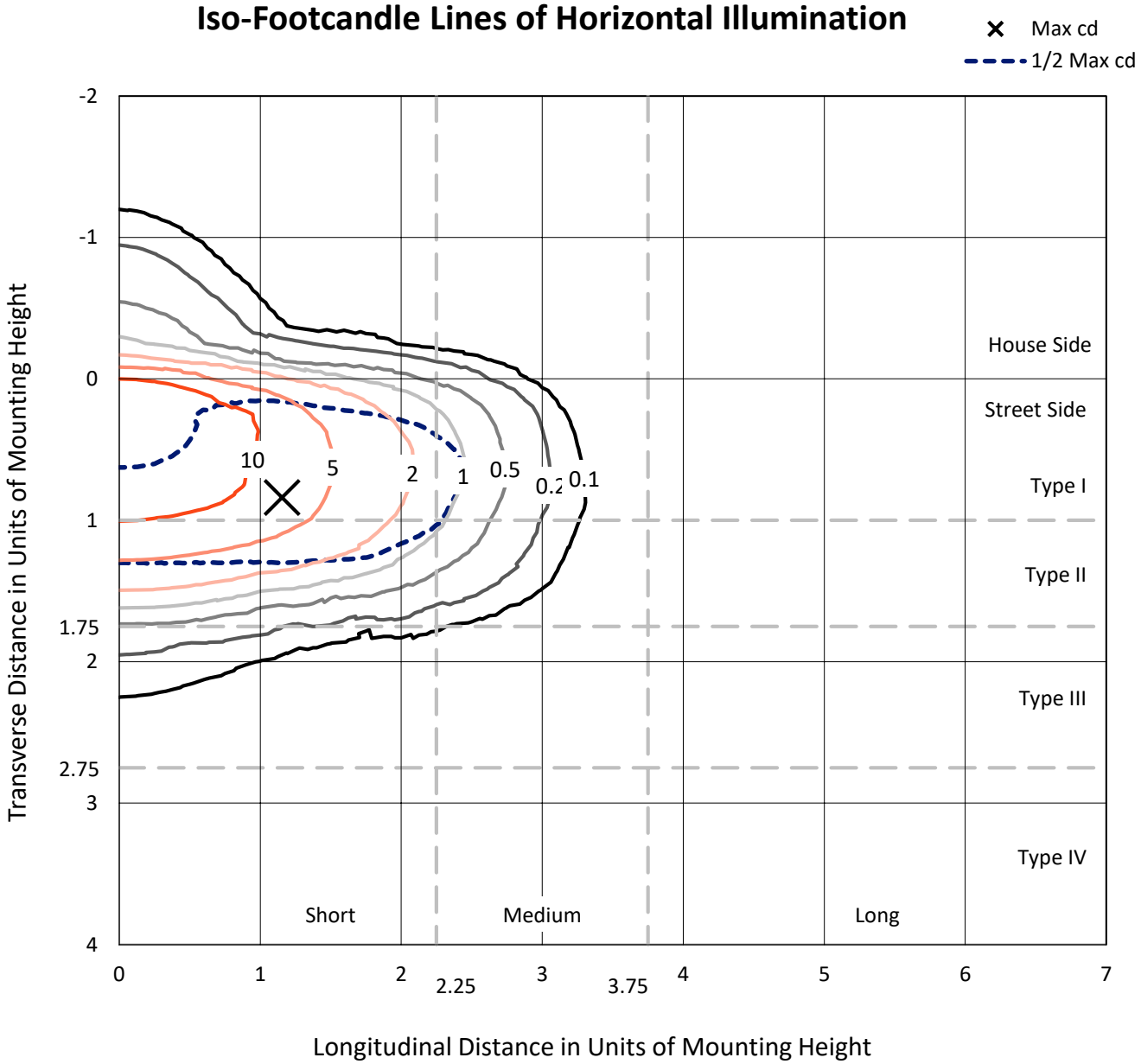
Scaled Data Report

REPORT NUMBER: P324752
CATALOG NUMBER: GLEON-SA8A-730-U-AFL-HSS

## Iso-Footcandle Lines of Horizontal Illumination




Based on 25 foot mounting height. Maximum calculated value = 15.3 fc
Type II - Short - N/A

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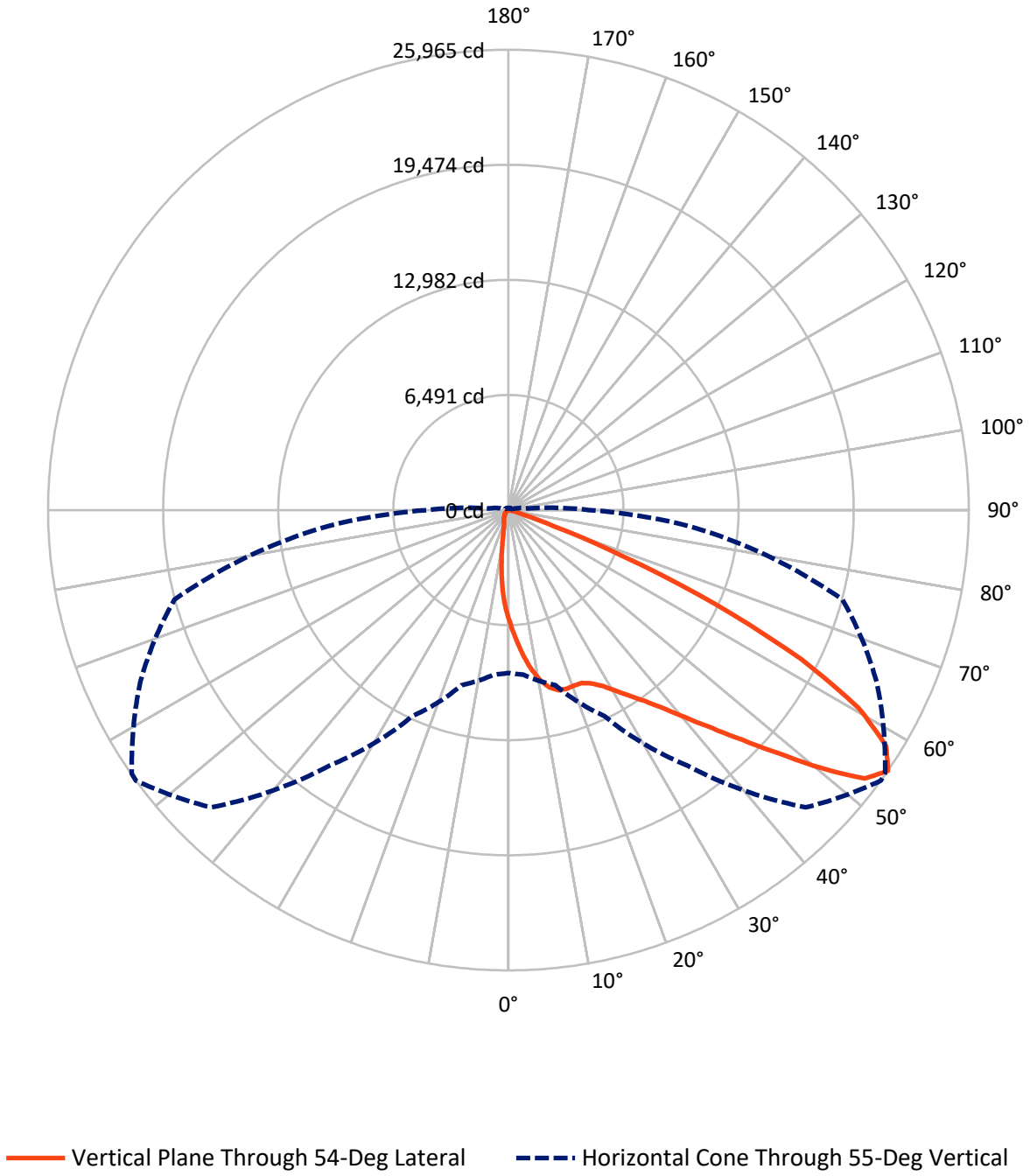
## Luminous Intensity Polar Plot



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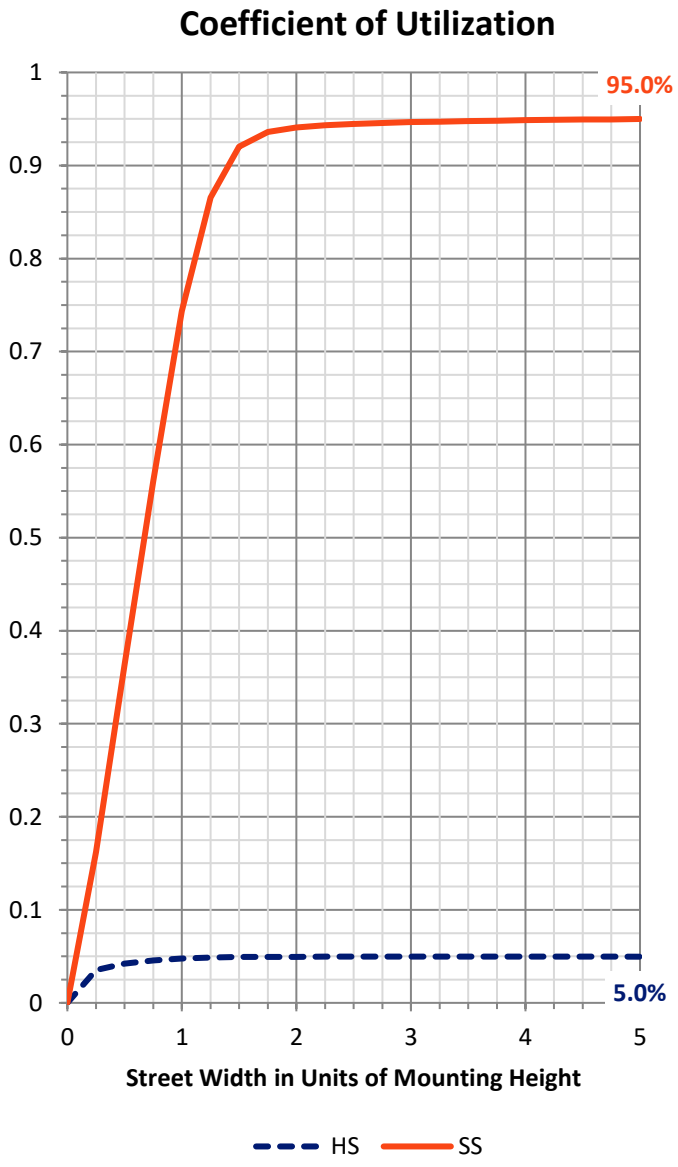
REPORT NUMBER: P324752
CATALOG NUMBER: GLEON-SA8A-730-U-AFL-HSS

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 1389.2 | 0.0 | 1389.2 |
| | % Fixture | 5.0 | 0.0 | 5.0 |
| **Street Side** | Lumens | 26453.8 | 0.0 | 26453.8 |
| | % Fixture | 95.0 | 0.0 | 95.0 |
| **Total** | Lumens | 27843.0 | 0.0 | 27843.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 574.2 | 2.1 |
| 10°-20° | 1574.9 | 5.7 |
| 20°-30° | 2688.8 | 9.7 |
| 30°-40° | 4315.1 | 15.5 |
| 40°-50° | 6895.6 | 24.8 |
| 50°-60° | 7388.8 | 26.5 |
| 60°-70° | 3793.6 | 13.6 |
| 70°-80° | 574.6 | 2.1 |
| 80°-90° | 37.4 | 0.1 |
| 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° | 27843.0 | 100.0 |
| 0°-180° | 27843.0 | 100.0 |



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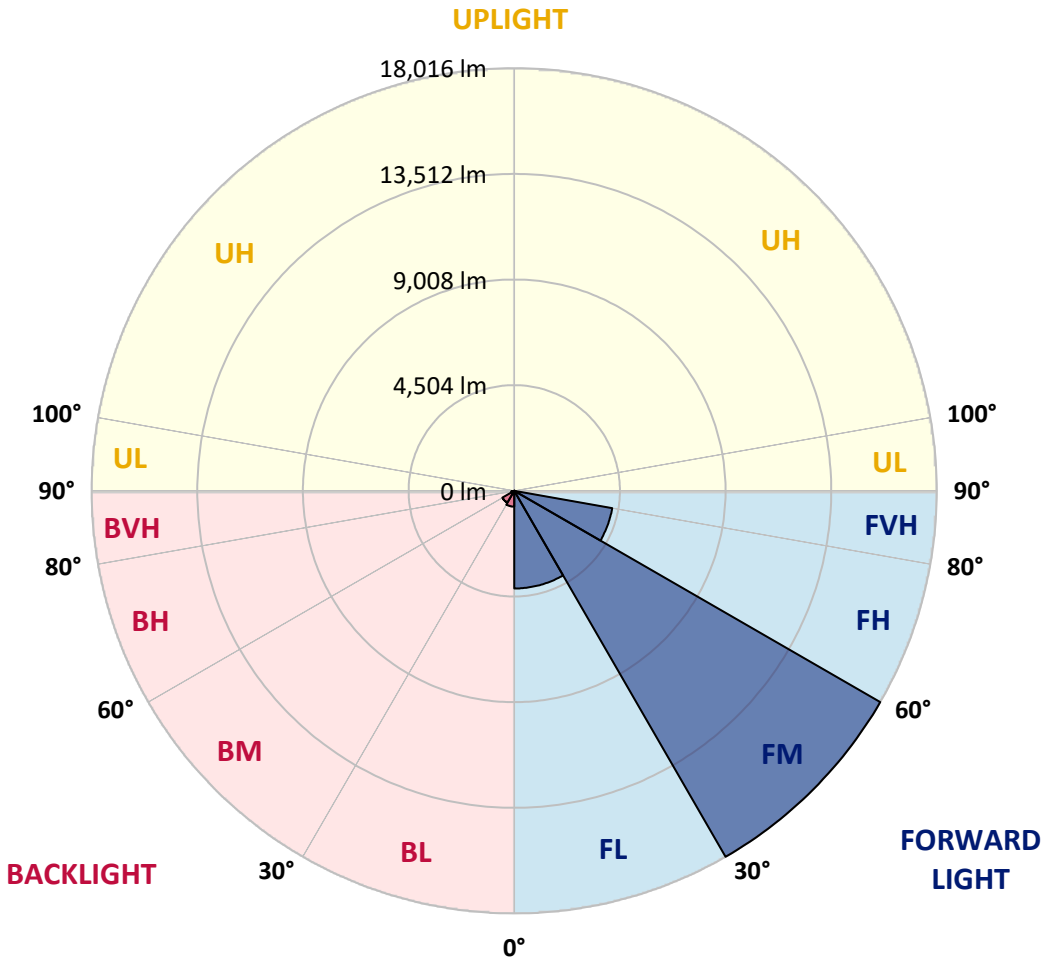
## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 4162.0 | 14.9 | | | |
| FM | (30°-60°) | 18015.7 | 64.7 | | | |
| FH | (60°-80°) | 4240.2 | 15.2 | | | G2/5000 |
| FVH | (80°-90°) | 35.9 | 0.1 | | | G1/100 |
| BL | (0°-30°) | 675.9 | 2.4 | B2/1000 | | |
| BM | (30°-60°) | 583.8 | 2.1 | B1/1000 | | |
| BH | (60°-80°) | 128.0 | 0.5 | B1/500 | | G1/500 |
| BVH | (80°-90°) | 1.5 | 0.0 | | | G0/10 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

**BUG Rating: B2-U0-G2**
Type II Short



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**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 54° | 55° | 65° | 75° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 6235.7 | 6235.7 | 6235.7 | 6235.7 | 6235.7 | 6235.7 | *6235.7* | 6235.7 | 6235.7 | 6235.7 | 6235.7 |
| 2.5° | 7825.3 | 7708.7 | 7712.3 | 7659.4 | 7465.8 | 7314.3 | *7156.8* | 7119.5 | 6874.2 | 6616.9 | 6369.2 |
| 5° | 9178.0 | 9092.6 | 9072.2 | 8970.0 | 8700.7 | 8415.7 | *8110.3* | 8039.3 | 7559.6 | 7032.9 | 6514.7 |
| 7.5° | 9873.0 | 9874.2 | 9857.4 | 9820.1 | 9651.8 | 9375.2 | *9002.5* | 8927.9 | 8275.0 | 7485.0 | 6666.2 |
| 10° | 9671.0 | 9716.7 | 9810.5 | 9934.3 | 10063.0 | 10028.1 | *9748.0* | 9680.6 | 8971.2 | 7963.6 | 6834.5 |
| 12.5° | 9199.7 | 9205.7 | 9310.3 | 9513.5 | 9883.8 | 10263.8 | *10268.6* | 10245.8 | 9636.1 | 8463.8 | 7019.7 |
| 15° | 8965.2 | 8988.0 | 9026.5 | 9157.6 | 9508.7 | 10117.1 | *10552.4* | 10584.8 | 10245.8 | 8995.3 | 7216.9 |
| 17.5° | 9119.1 | 9151.6 | 9119.1 | 9134.7 | 9337.9 | 9885.0 | *10601.7* | 10684.6 | 10778.4 | 9520.7 | 7403.3 |
| 20° | 9536.3 | 9566.4 | 9508.7 | 9445.0 | 9484.6 | 9817.7 | *10566.8* | 10678.6 | 11195.7 | 9987.2 | 7559.6 |
| 22.5° | 10099.1 | 10111.1 | 10023.3 | 9918.7 | 9889.8 | 10046.2 | *10595.7* | 10711.1 | 11529.9 | 10409.3 | 7658.2 |
| 25° | 10718.3 | 10729.1 | 10619.7 | 10499.5 | 10430.9 | 10494.7 | *10832.5* | 10919.1 | 11824.5 | 10812.1 | 7714.7 |
| 27.5° | 11392.9 | 11402.5 | 11265.4 | 11117.5 | 11038.2 | 11040.6 | *11223.3* | 11315.9 | 12138.4 | 11271.4 | 7760.4 |
| 30° | 12105.9 | 12101.1 | 11974.8 | 11769.2 | 11668.2 | 11665.8 | *11786.1* | 11879.8 | 12592.9 | 11860.6 | 7822.9 |
| 32.5° | 12906.7 | 12897.1 | 12717.9 | 12463.0 | 12348.8 | 12365.6 | *12472.6* | 12526.7 | 13156.8 | 12488.3 | 7934.7 |
| 35° | 13961.2 | 13933.6 | 13663.0 | 13346.8 | 13136.4 | 13130.4 | *13220.5* | 13263.8 | 13875.8 | 13248.2 | 8121.1 |
| 37.5° | 15329.6 | 15304.3 | 14937.6 | 14478.3 | 14182.5 | 14071.8 | *14178.9* | 14234.2 | 14901.5 | 14223.3 | 8420.5 |
| 40° | 16678.7 | 16653.4 | 16435.8 | 16014.9 | 15559.2 | 15293.5 | *15377.7* | 15436.6 | 16182.1 | 15406.5 | 8798.1 |
| 42.5° | 17609.3 | 17631.0 | 17706.7 | 17741.6 | 17314.7 | 16756.8 | *16795.3* | 16856.6 | 17527.6 | 16671.5 | 9229.7 |
| 45° | 17854.6 | 17901.5 | 18329.6 | 19170.1 | 19330.0 | 18894.7 | *18491.9* | 18525.6 | 18894.7 | 17936.4 | 9661.4 |
| 47.5° | 17117.6 | 17204.1 | 18030.2 | 19593.3 | 20947.2 | 21255.1 | *20492.7* | 20448.2 | 20206.6 | 18959.7 | 9968.0 |
| 50° | 15442.6 | 15522.0 | 16592.1 | 18904.3 | 21437.8 | 23508.4 | *22890.3* | 22759.3 | 21357.3 | 19571.7 | 10076.2 |
| 52.5° | 13018.5 | 13114.7 | 13984.1 | 16735.2 | 20513.2 | 24513.6 | *25160.5* | 25051.1 | 22201.4 | 19619.8 | 10094.3 |
| 55° | *9193.7* | *9310.3* | *10230.1* | *12826.1* | *17582.9* | *23714.0* | *25964.9* | *25932.4* | *22902.4* | *19492.3* | *10132.7* |
| 57.5° | 5166.8 | 5250.9 | 6242.9 | 8222.1 | 12877.8 | 20655.1 | *25124.4* | 25339.7 | 23325.6 | 19271.1 | 10190.5 |
| 60° | 2294.2 | 2317.1 | 2830.5 | 4093.0 | 7539.1 | 15785.3 | *22718.4* | 23081.5 | 22962.5 | 18975.3 | 10287.8 |
| 62.5° | 1272.2 | 1252.9 | 1252.9 | 1701.4 | 3276.6 | 9772.0 | *18525.6* | 19125.6 | 21412.6 | 18625.4 | 10292.7 |
| 65° | 996.8 | 978.8 | 927.1 | 934.3 | 1248.1 | 4337.1 | *12828.5* | 13895.1 | 18469.1 | 17599.7 | 9946.4 |
| 67.5° | 845.3 | 829.7 | 778.0 | 757.5 | 775.6 | 1430.9 | *7048.5* | 8156.0 | 14014.1 | 14934.0 | 8615.3 |
| 70° | 714.2 | 703.4 | 677.0 | 651.7 | 606.0 | 707.0 | *2697.0* | 3449.7 | 8635.7 | 9934.3 | 5881.0 |
| 72.5° | 574.8 | 569.9 | 579.6 | 557.9 | 502.6 | 471.3 | *922.3* | 1117.0 | 3879.0 | 4433.3 | 2422.9 |
| 75° | 495.4 | 493.0 | 497.8 | 476.2 | 413.6 | 328.3 | *468.9* | 512.2 | 1094.2 | 1084.6 | 490.6 |
| 77.5° | 322.2 | 325.9 | 412.4 | 402.8 | 355.9 | 218.8 | *242.9* | 262.1 | 331.9 | 248.9 | 149.1 |
| 80° | 205.6 | 203.2 | 209.2 | 334.3 | 319.8 | 167.1 | *121.4* | 127.5 | 159.9 | 122.6 | 72.1 |
| 82.5° | 125.1 | 122.6 | 137.1 | 156.3 | 161.1 | 116.6 | *74.5* | 75.8 | 99.8 | 79.4 | 38.5 |
| 85° | 10.8 | 14.4 | 83.0 | 77.0 | 55.3 | 36.1 | *36.1* | 38.5 | 52.9 | 46.9 | 21.6 |
| 87.5° | 0.0 | 0.0 | 14.4 | 21.6 | 12.0 | 13.2 | *13.2* | 14.4 | 20.4 | 20.4 | 10.8 |
| 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: P324752
CATALOG NUMBER: GLEON-SA8A-730-U-AFL-HSS

**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 6235.7 | 6235.7 | 6235.7 | 6235.7 | 6235.7 | 6235.7 | 6235.7 | 6235.7 | 6235.7 | 6235.7 | 6235.7 |
| 2.5° | 6240.5 | 6115.5 | 5863.0 | 5620.1 | 5414.5 | 5216.1 | 4990.0 | 4766.4 | 4661.8 | 4619.7 | 4576.4 |
| 5° | 6251.3 | 5994.0 | 5473.4 | 4949.1 | 4405.6 | 3916.3 | 3499.0 | 3071.0 | 2856.9 | 2763.1 | 2719.9 |
| 7.5° | 6265.8 | 5873.8 | 5032.1 | 4151.9 | 3276.6 | 2612.8 | 2033.3 | 1660.5 | 1499.4 | 1474.2 | 1411.6 |
| 10° | 6268.2 | 5728.3 | 4519.9 | 3271.8 | 2196.8 | 1575.2 | 1212.0 | 1019.6 | 948.7 | 936.7 | 916.2 |
| 12.5° | 6273.0 | 5556.4 | 3951.1 | 2422.9 | 1464.5 | 1053.3 | 876.6 | 812.8 | 793.6 | 792.4 | 792.4 |
| 15° | 6287.4 | 5376.0 | 3360.7 | 1745.9 | 1052.1 | 834.5 | 769.5 | 744.3 | 737.1 | 740.7 | 739.5 |
| 17.5° | 6287.4 | 5163.2 | 2781.2 | 1301.0 | 850.1 | 750.3 | 714.2 | 697.4 | 695.0 | 698.6 | 699.8 |
| 20° | 6241.7 | 4904.6 | 2249.7 | 1012.4 | 753.9 | 696.2 | 663.7 | 648.1 | 642.1 | 644.5 | 645.7 |
| 22.5° | 6132.3 | 4587.2 | 1816.8 | 838.1 | 690.2 | 646.9 | 612.0 | 588.0 | 578.4 | 579.6 | 579.6 |
| 25° | 5961.6 | 4210.9 | 1421.3 | 725.1 | 638.5 | 594.0 | 553.1 | 525.5 | 519.4 | 518.2 | 520.6 |
| 27.5° | 5742.7 | 3794.8 | 1131.5 | 638.5 | 577.2 | 535.1 | 494.2 | 471.3 | 466.5 | 467.7 | 468.9 |
| 30° | 5527.5 | 3363.1 | 892.2 | 565.1 | 508.6 | 468.9 | 437.7 | 426.9 | 426.9 | 430.5 | 431.7 |
| 32.5° | 5330.3 | 2948.3 | 705.8 | 501.4 | 447.3 | 411.2 | 393.2 | 392.0 | 398.0 | 400.4 | 401.6 |
| 35° | 5160.8 | 2564.7 | 584.4 | 452.1 | 399.2 | 367.9 | 361.9 | 366.7 | 374.0 | 378.8 | 380.0 |
| 37.5° | 5040.5 | 2222.1 | 511.0 | 411.2 | 361.9 | 336.7 | 335.5 | 345.1 | 354.7 | 365.5 | 367.9 |
| 40° | 4990.0 | 1932.3 | 460.5 | 375.2 | 331.9 | 312.6 | 309.0 | 322.2 | 340.3 | 355.9 | 358.3 |
| 42.5° | 4947.9 | 1695.4 | 417.2 | 340.3 | 307.8 | 280.2 | 279.0 | 295.8 | 317.4 | 333.1 | 336.7 |
| 45° | 4911.9 | 1505.4 | 377.6 | 303.0 | 276.6 | 240.5 | 244.1 | 265.7 | 282.6 | 299.4 | 303.0 |
| 47.5° | 4837.3 | 1349.1 | 334.3 | 263.3 | 228.5 | 205.6 | 212.8 | 232.1 | 245.3 | 270.5 | 274.2 |
| 50° | 4703.8 | 1221.7 | 289.8 | 215.2 | 186.4 | 178.0 | 188.8 | 202.0 | 218.8 | 240.5 | 242.9 |
| 52.5° | 4613.7 | 1125.5 | 251.3 | 180.4 | 153.9 | 156.3 | 167.1 | 171.9 | 181.6 | 190.0 | 187.6 |
| 55° | *4562.0* | *1072.6* | *220.0* | *156.3* | *131.1* | *138.3* | *140.7* | *134.7* | *129.9* | *121.4* | *117.8* |
| 57.5° | 4555.9 | 1024.5 | 196.0 | 135.9 | 115.4 | 119.0 | 110.6 | 90.2 | 73.3 | 63.7 | 61.3 |
| 60° | 4546.3 | 965.5 | 176.8 | 114.2 | 102.2 | 97.4 | 79.4 | 49.3 | 34.9 | 32.5 | 32.5 |
| 62.5° | 4441.7 | 874.2 | 162.3 | 96.2 | 86.6 | 73.3 | 45.7 | 22.8 | 19.2 | 20.4 | 20.4 |
| 65° | 4108.6 | 746.7 | 147.9 | 78.2 | 68.5 | 52.9 | 22.8 | 13.2 | 7.2 | 8.4 | 8.4 |
| 67.5° | 3493.0 | 595.2 | 132.3 | 60.1 | 51.7 | 33.7 | 13.2 | 6.0 | 0.0 | 0.0 | 0.0 |
| 70° | 2338.7 | 369.1 | 111.8 | 42.1 | 33.7 | 20.4 | 9.6 | 1.2 | 0.0 | 0.0 | 0.0 |
| 72.5° | 897.0 | 199.6 | 90.2 | 25.3 | 21.6 | 14.4 | 6.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 75° | 202.0 | 131.1 | 62.5 | 18.0 | 15.6 | 9.6 | 2.4 | 0.0 | 0.0 | 0.0 | 0.0 |
| 77.5° | 77.0 | 95.0 | 36.1 | 12.0 | 10.8 | 6.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 80° | 37.3 | 56.5 | 16.8 | 7.2 | 6.0 | 2.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 82.5° | 19.2 | 21.6 | 7.2 | 3.6 | 2.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 10.8 | 10.8 | 3.6 | 2.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 6.0 | 3.6 | 1.2 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 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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# LM-79-2008: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGRAW-EDISON

Report Number: SP1-1908-441-2-R4

Test Date: 10/03/2019

Luminaire Tested: SA1C-730-U-5WQ

Data in this report applies to families of products SA1C-730-U-5WQ .

Report Generated By FNC07603 / LDUCLS01DT446
Version: v6.13

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Peachtree City, GA 30269

## Test Information

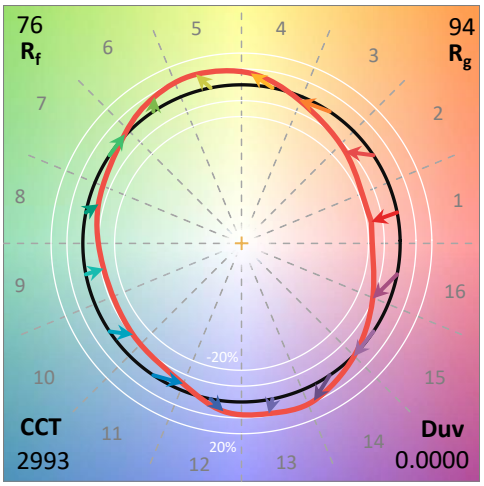
| | |
|---|---|
| Test Method: | LM-79-2008 |
| Report Number: | SP1-1908-441-2-R4 |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Photometer: | SP1 - 76IN SPHERE |
| Measurement Geometry: | 4π |
| Issue Date: | 10/28/2024 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | **SA1C-730-U-5WQ** |
| Description: | McGRAW EDISON ROADWAY AND AREA LUMINAIRE |

***THIS IS A REVISION OF SP1-1908-441-2-R3. TO UPDATE THE CATALOG INFORMATION.***TESTED IN SITU. (1) 70 CRI, 3000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

## Spectral Parameters

| | | | | | |
|---|---|---|---|---|---|
| CCT (K): | 2993 | CRI (Ra): | 71.8 | | |
| CIE u': | 0.2508 | R1: | 67.5 | R9: | -38.3 |
| CIE v': | 0.5215 | R2: | 82.9 | R10: | 62.5 |
| Duv: | 0.0000 | R3: | 94.7 | R11: | 63.7 |
| CIE x: | 0.4374 | R4: | 67.7 | R12: | 57.8 |
| CIE y: | 0.4043 | R5: | 67.9 | R13: | 70.4 |
| CIE z: | 0.1583 | R6: | 77.6 | R14: | 97.3 |
| Peak Wavelength (nm): | 593 | R7: | 76.0 | | |
| Dominant Wavelength (nm): | 582 | R8: | 40.5 | | |
| Purity: | 53 | | | | |

| | |
|---|---|
| Rf: | 75.7 |
| Rg: | 93.9 |




## Test Conditions

| | |
|---|---|
| Stabilization Time: | 53M |
| Operation Time: | 12H |
| Room Temperature (°C) / RH%: | 25.0./44% |
| Sphere Temperature (°C): | 25.7 |

Cooper Lighting Solutions Photometric Lab
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Peachtree City, GA 30269

REPORT NUMBER: SP1-1908-441-2-R4

| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/28/2019 | 12/28/2019 |
| Power Meter | IN0071 | 12/5/2018 | 12/5/2019 |
| AC Power Source | IN0063 | 12/5/2018 | 12/5/2019 |
| DC Power Source | IN0208 | 12/5/2018 | 12/5/2019 |
| Sphere Thermometer | IN0085 | 12/5/2018 | 12/5/2019 |
| Room Thermometer | IN0046 | 12/5/2018 | 12/5/2019 |

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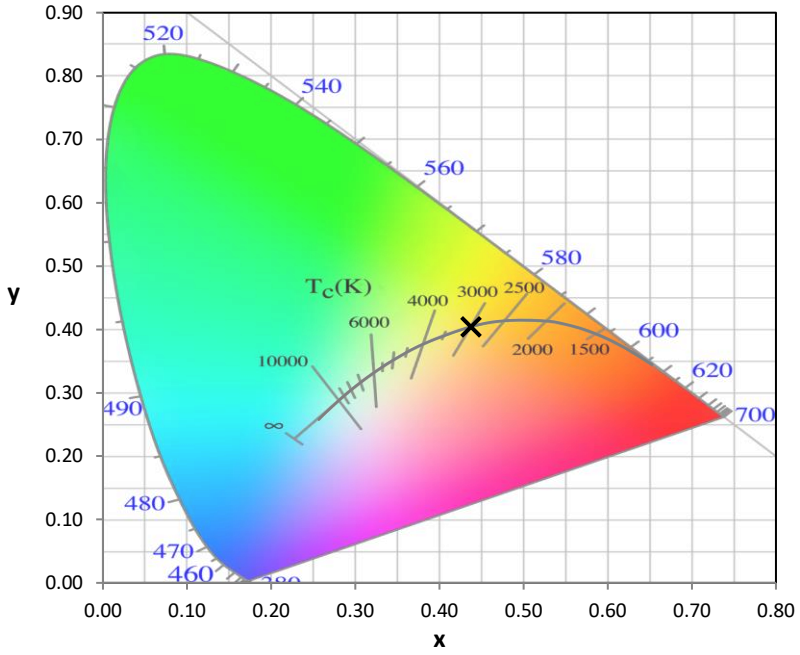
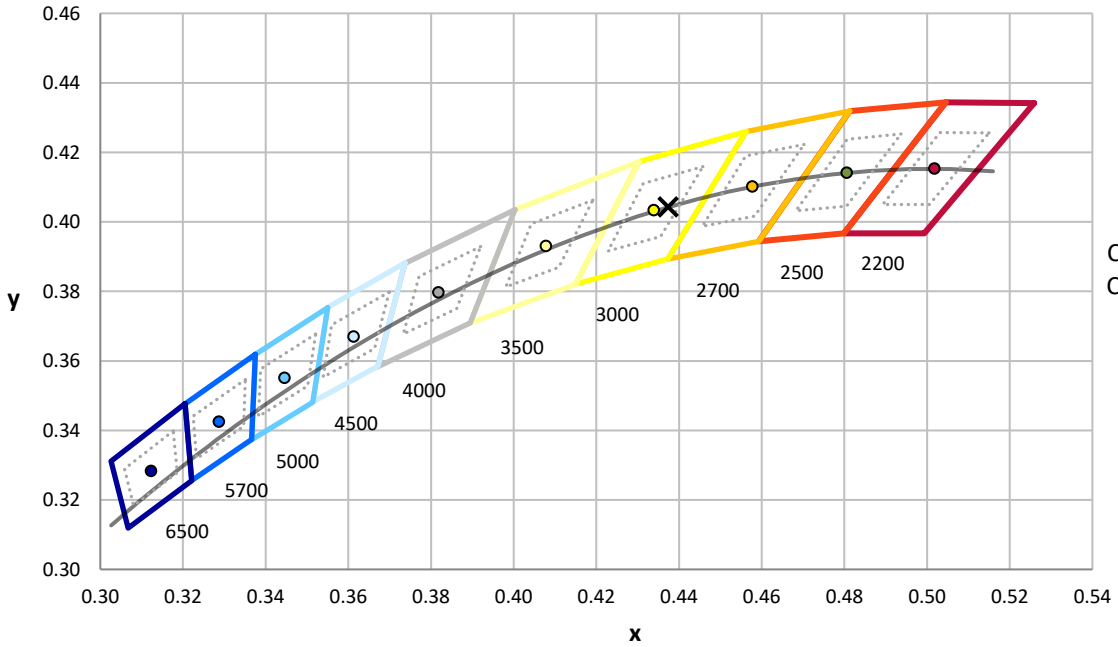
## CIE 1931 Chromaticity Diagram




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




CCT = 2993K
CIE x = 0.4374
CIE y = 0.4043
Duv = 0.0000

Point lies inside the ANSI 3000K 4-step quadrangle

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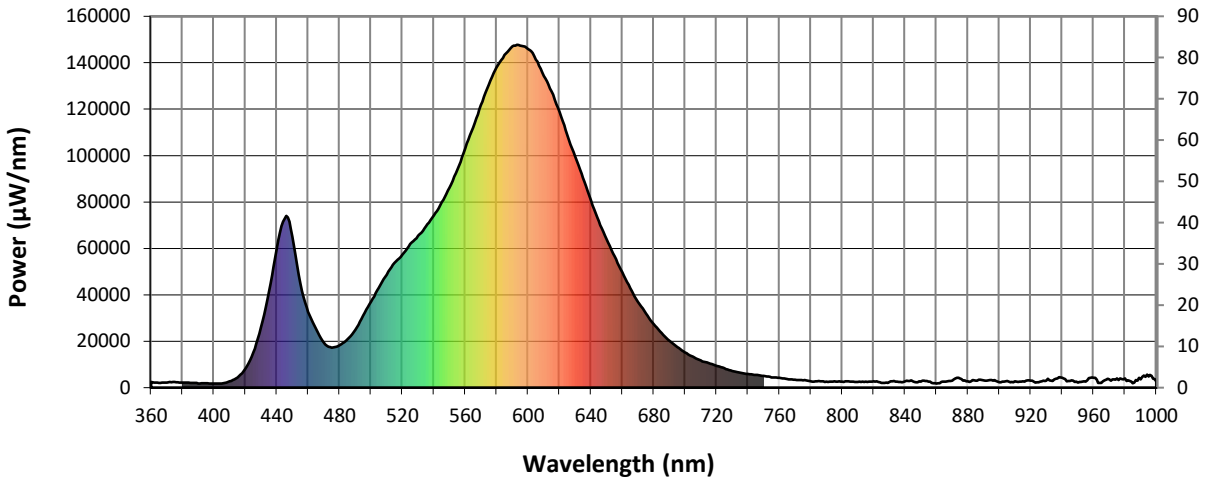
## Photopic Flux vs. Wavelength




######

| λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 2397 | NR | 490 | 24908 | NR | 620 | 118784 | NR | 750 | 5037 | NR | 880 | 2677 | NR |
| 365 | 2084 | NR | 495 | 30998 | NR | 625 | 108951 | NR | 755 | 4413 | NR | 885 | 2940 | NR |
| 370 | 2143 | NR | 500 | 37103 | NR | 630 | 99573 | NR | 760 | 4189 | NR | 890 | 3116 | NR |
| 375 | 2413 | NR | 505 | 42987 | NR | 635 | 90444 | NR | 765 | 3677 | NR | 895 | 3345 | NR |
| 380 | 2172 | NR | 510 | 48702 | NR | 640 | 80749 | NR | 770 | 3366 | NR | 900 | 2312 | NR |
| 385 | 1997 | NR | 515 | 53741 | NR | 645 | 71664 | NR | 775 | 3211 | NR | 905 | 2829 | NR |
| 390 | 1830 | NR | 520 | 57283 | NR | 650 | 63936 | NR | 780 | 2682 | NR | 910 | 2783 | NR |
| 395 | 1861 | NR | 525 | 61876 | NR | 655 | 56611 | NR | 785 | 2804 | NR | 915 | 2662 | NR |
| 400 | 1717 | NR | 530 | 65398 | NR | 660 | 49763 | NR | 790 | 2581 | NR | 920 | 3047 | NR |
| 405 | 1761 | NR | 535 | 69597 | NR | 665 | 42891 | NR | 795 | 2711 | NR | 925 | 2256 | NR |
| 410 | 2680 | NR | 540 | 74214 | NR | 670 | 36939 | NR | 800 | 2609 | NR | 930 | 2976 | NR |
| 415 | 4374 | NR | 545 | 79911 | NR | 675 | 31946 | NR | 805 | 2581 | NR | 935 | 3503 | NR |
| 420 | 8071 | NR | 550 | 86153 | NR | 680 | 27385 | NR | 810 | 2404 | NR | 940 | 4226 | NR |
| 425 | 15169 | NR | 555 | 93952 | NR | 685 | 23504 | NR | 815 | 2556 | NR | 945 | 2930 | NR |
| 430 | 26038 | NR | 560 | 102904 | NR | 690 | 20210 | NR | 820 | 2742 | NR | 950 | 2115 | NR |
| 435 | 41316 | NR | 565 | 112009 | NR | 695 | 17459 | NR | 825 | 2014 | NR | 955 | 2634 | NR |
| 440 | 59674 | NR | 570 | 121662 | NR | 700 | 15207 | NR | 830 | 2488 | NR | 960 | 4200 | NR |
| 445 | 72751 | NR | 575 | 130476 | NR | 705 | 13322 | NR | 835 | 2625 | NR | 965 | 1982 | NR |
| 450 | 65091 | NR | 580 | 137926 | NR | 710 | 11676 | NR | 840 | 2754 | NR | 970 | 3613 | NR |
| 455 | 44894 | NR | 585 | 143406 | NR | 715 | 10626 | NR | 845 | 2708 | NR | 975 | 4034 | NR |
| 460 | 32712 | NR | 590 | 147039 | NR | 720 | 9416 | NR | 850 | 2608 | NR | 980 | 3922 | NR |
| 465 | 25296 | NR | 595 | 147365 | NR | 725 | 8333 | NR | 855 | 2605 | NR | 985 | 1909 | NR |
| 470 | 19318 | NR | 600 | 145800 | NR | 730 | 7134 | NR | 860 | 1765 | NR | 990 | 3617 | NR |
| 475 | 17265 | NR | 605 | 141363 | NR | 735 | 6437 | NR | 865 | 2581 | NR | 995 | 4767 | NR |
| 480 | 18260 | NR | 610 | 134199 | NR | 740 | 5834 | NR | 870 | 3016 | NR | 1000 | 2528 | NR |
| 485 | 20845 | NR | 615 | 127683 | NR | 745 | 5500 | NR | 875 | 3952 | NR | | | |

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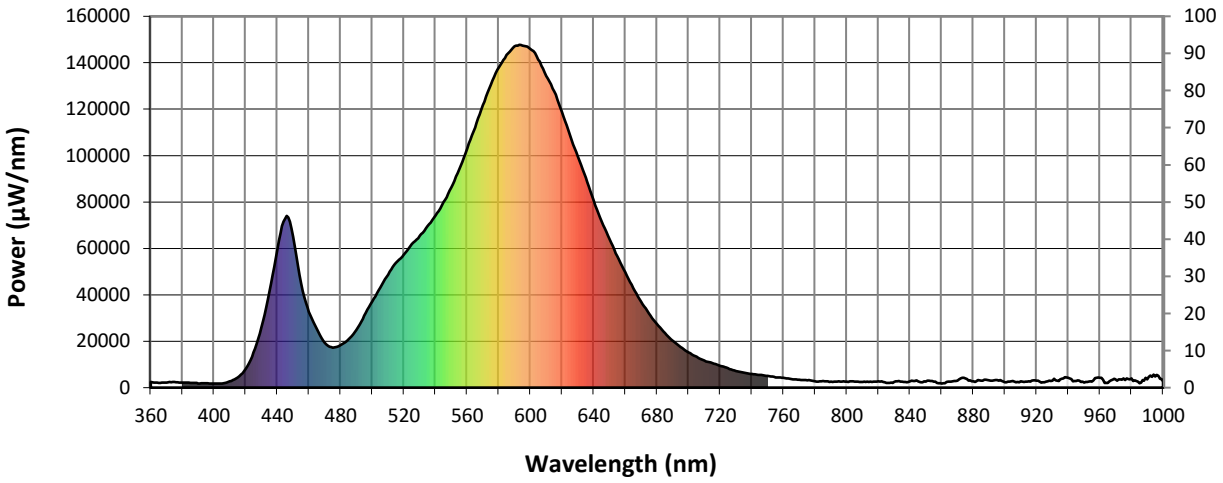
## Scotopic Flux vs. Wavelength




**Scotopic Lumens: 8494.8** **S/P: 1.23**

| λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 2397 | NR | 490 | 24908 | NR | 620 | 118784 | NR | 750 | 5037 | NR | 880 | 2677 | NR |
| 365 | 2084 | NR | 495 | 30998 | NR | 625 | 108951 | NR | 755 | 4413 | NR | 885 | 2940 | NR |
| 370 | 2143 | NR | 500 | 37103 | NR | 630 | 99573 | NR | 760 | 4189 | NR | 890 | 3116 | NR |
| 375 | 2413 | NR | 505 | 42987 | NR | 635 | 90444 | NR | 765 | 3677 | NR | 895 | 3345 | NR |
| 380 | 2172 | NR | 510 | 48702 | NR | 640 | 80749 | NR | 770 | 3366 | NR | 900 | 2312 | NR |
| 385 | 1997 | NR | 515 | 53741 | NR | 645 | 71664 | NR | 775 | 3211 | NR | 905 | 2829 | NR |
| 390 | 1830 | NR | 520 | 57283 | NR | 650 | 63936 | NR | 780 | 2682 | NR | 910 | 2783 | NR |
| 395 | 1861 | NR | 525 | 61876 | NR | 655 | 56611 | NR | 785 | 2804 | NR | 915 | 2662 | NR |
| 400 | 1717 | NR | 530 | 65398 | NR | 660 | 49763 | NR | 790 | 2581 | NR | 920 | 3047 | NR |
| 405 | 1761 | NR | 535 | 69597 | NR | 665 | 42891 | NR | 795 | 2711 | NR | 925 | 2256 | NR |
| 410 | 2680 | NR | 540 | 74214 | NR | 670 | 36939 | NR | 800 | 2609 | NR | 930 | 2976 | NR |
| 415 | 4374 | NR | 545 | 79911 | NR | 675 | 31946 | NR | 805 | 2581 | NR | 935 | 3503 | NR |
| 420 | 8071 | NR | 550 | 86153 | NR | 680 | 27385 | NR | 810 | 2404 | NR | 940 | 4226 | NR |
| 425 | 15169 | NR | 555 | 93952 | NR | 685 | 23504 | NR | 815 | 2556 | NR | 945 | 2930 | NR |
| 430 | 26038 | NR | 560 | 102904 | NR | 690 | 20210 | NR | 820 | 2742 | NR | 950 | 2115 | NR |
| 435 | 41316 | NR | 565 | 112009 | NR | 695 | 17459 | NR | 825 | 2014 | NR | 955 | 2634 | NR |
| 440 | 59674 | NR | 570 | 121662 | NR | 700 | 15207 | NR | 830 | 2488 | NR | 960 | 4200 | NR |
| 445 | 72751 | NR | 575 | 130476 | NR | 705 | 13322 | NR | 835 | 2625 | NR | 965 | 1982 | NR |
| 450 | 65091 | NR | 580 | 137926 | NR | 710 | 11676 | NR | 840 | 2754 | NR | 970 | 3613 | NR |
| 455 | 44894 | NR | 585 | 143406 | NR | 715 | 10626 | NR | 845 | 2708 | NR | 975 | 4034 | NR |
| 460 | 32712 | NR | 590 | 147039 | NR | 720 | 9416 | NR | 850 | 2608 | NR | 980 | 3922 | NR |
| 465 | 25296 | NR | 595 | 147365 | NR | 725 | 8333 | NR | 855 | 2605 | NR | 985 | 1909 | NR |
| 470 | 19318 | NR | 600 | 145800 | NR | 730 | 7134 | NR | 860 | 1765 | NR | 990 | 3617 | NR |
| 475 | 17265 | NR | 605 | 141363 | NR | 735 | 6437 | NR | 865 | 2581 | NR | 995 | 4767 | NR |
| 480 | 18260 | NR | 610 | 134199 | NR | 740 | 5834 | NR | 870 | 3016 | NR | 1000 | 2528 | NR |
| 485 | 20845 | NR | 615 | 127683 | NR | 745 | 5500 | NR | 875 | 3952 | NR | | | |

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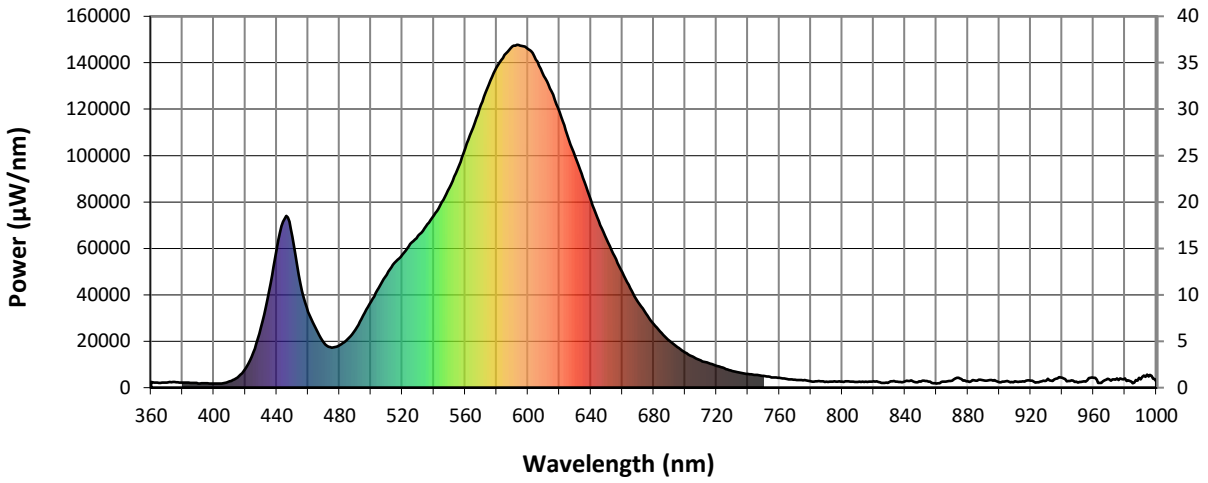
## Melanopic Flux vs. Wavelength




**Melanopic Lumens: 3101.5** **M/P: 0.45**

| λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 2397 | NR | 490 | 24908 | NR | 620 | 118784 | NR | 750 | 5037 | NR | 880 | 2677 | NR |
| 365 | 2084 | NR | 495 | 30998 | NR | 625 | 108951 | NR | 755 | 4413 | NR | 885 | 2940 | NR |
| 370 | 2143 | NR | 500 | 37103 | NR | 630 | 99573 | NR | 760 | 4189 | NR | 890 | 3116 | NR |
| 375 | 2413 | NR | 505 | 42987 | NR | 635 | 90444 | NR | 765 | 3677 | NR | 895 | 3345 | NR |
| 380 | 2172 | NR | 510 | 48702 | NR | 640 | 80749 | NR | 770 | 3366 | NR | 900 | 2312 | NR |
| 385 | 1997 | NR | 515 | 53741 | NR | 645 | 71664 | NR | 775 | 3211 | NR | 905 | 2829 | NR |
| 390 | 1830 | NR | 520 | 57283 | NR | 650 | 63936 | NR | 780 | 2682 | NR | 910 | 2783 | NR |
| 395 | 1861 | NR | 525 | 61876 | NR | 655 | 56611 | NR | 785 | 2804 | NR | 915 | 2662 | NR |
| 400 | 1717 | NR | 530 | 65398 | NR | 660 | 49763 | NR | 790 | 2581 | NR | 920 | 3047 | NR |
| 405 | 1761 | NR | 535 | 69597 | NR | 665 | 42891 | NR | 795 | 2711 | NR | 925 | 2256 | NR |
| 410 | 2680 | NR | 540 | 74214 | NR | 670 | 36939 | NR | 800 | 2609 | NR | 930 | 2976 | NR |
| 415 | 4374 | NR | 545 | 79911 | NR | 675 | 31946 | NR | 805 | 2581 | NR | 935 | 3503 | NR |
| 420 | 8071 | NR | 550 | 86153 | NR | 680 | 27385 | NR | 810 | 2404 | NR | 940 | 4226 | NR |
| 425 | 15169 | NR | 555 | 93952 | NR | 685 | 23504 | NR | 815 | 2556 | NR | 945 | 2930 | NR |
| 430 | 26038 | NR | 560 | 102904 | NR | 690 | 20210 | NR | 820 | 2742 | NR | 950 | 2115 | NR |
| 435 | 41316 | NR | 565 | 112009 | NR | 695 | 17459 | NR | 825 | 2014 | NR | 955 | 2634 | NR |
| 440 | 59674 | NR | 570 | 121662 | NR | 700 | 15207 | NR | 830 | 2488 | NR | 960 | 4200 | NR |
| 445 | 72751 | NR | 575 | 130476 | NR | 705 | 13322 | NR | 835 | 2625 | NR | 965 | 1982 | NR |
| 450 | 65091 | NR | 580 | 137926 | NR | 710 | 11676 | NR | 840 | 2754 | NR | 970 | 3613 | NR |
| 455 | 44894 | NR | 585 | 143406 | NR | 715 | 10626 | NR | 845 | 2708 | NR | 975 | 4034 | NR |
| 460 | 32712 | NR | 590 | 147039 | NR | 720 | 9416 | NR | 850 | 2608 | NR | 980 | 3922 | NR |
| 465 | 25296 | NR | 595 | 147365 | NR | 725 | 8333 | NR | 855 | 2605 | NR | 985 | 1909 | NR |
| 470 | 19318 | NR | 600 | 145800 | NR | 730 | 7134 | NR | 860 | 1765 | NR | 990 | 3617 | NR |
| 475 | 17265 | NR | 605 | 141363 | NR | 735 | 6437 | NR | 865 | 2581 | NR | 995 | 4767 | NR |
| 480 | 18260 | NR | 610 | 134199 | NR | 740 | 5834 | NR | 870 | 3016 | NR | 1000 | 2528 | NR |
| 485 | 20845 | NR | 615 | 127683 | NR | 745 | 5500 | NR | 875 | 3952 | NR | | | |

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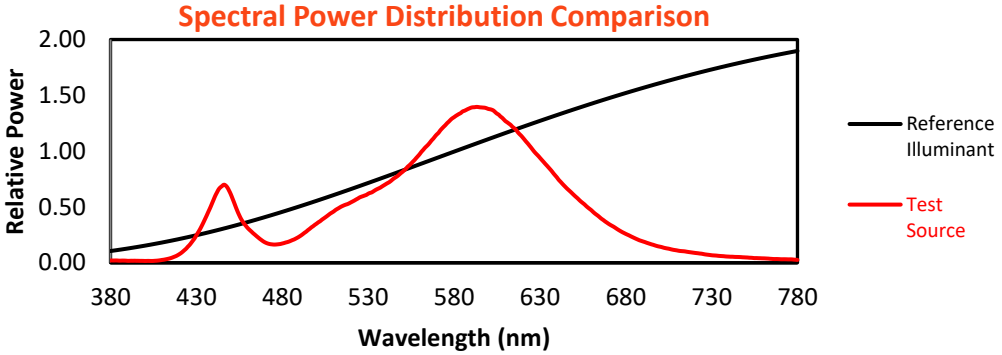
# TM-30-18

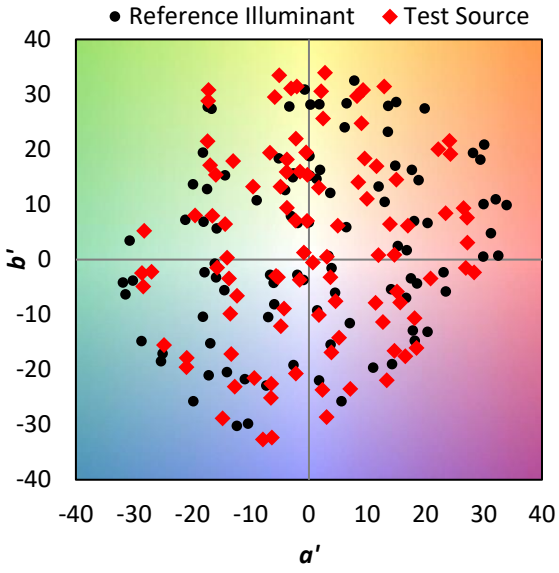
## Summary

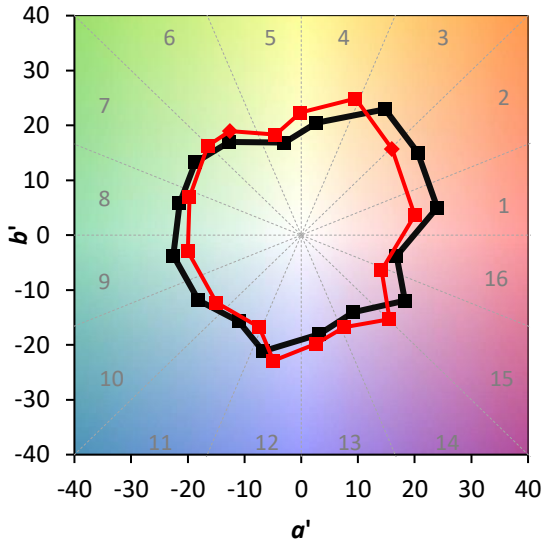
$R_f$ = 75.7
$R_g$ = 93.9
CIE $R_a$ = 71.8
$R_9$ = -38.3

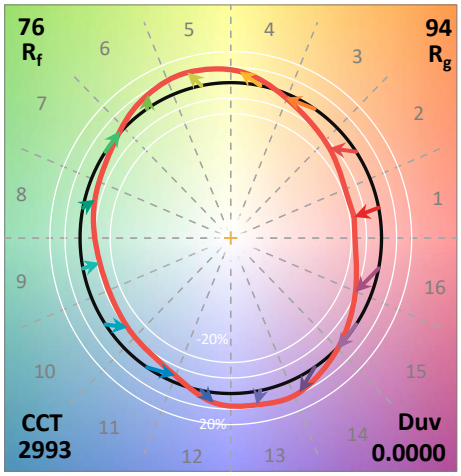
## Spectral Power Distribution Comparison

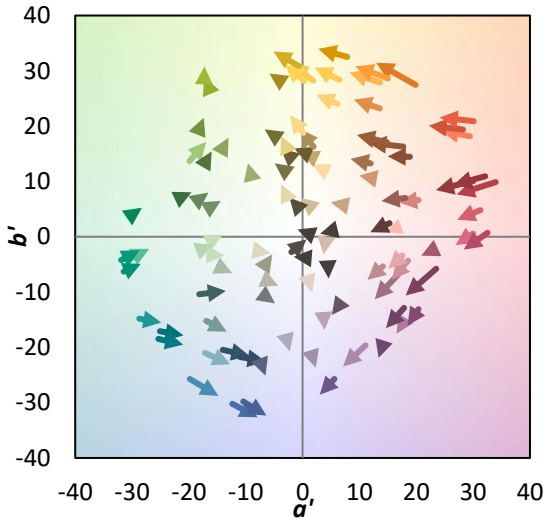



## Color Vector Graphics



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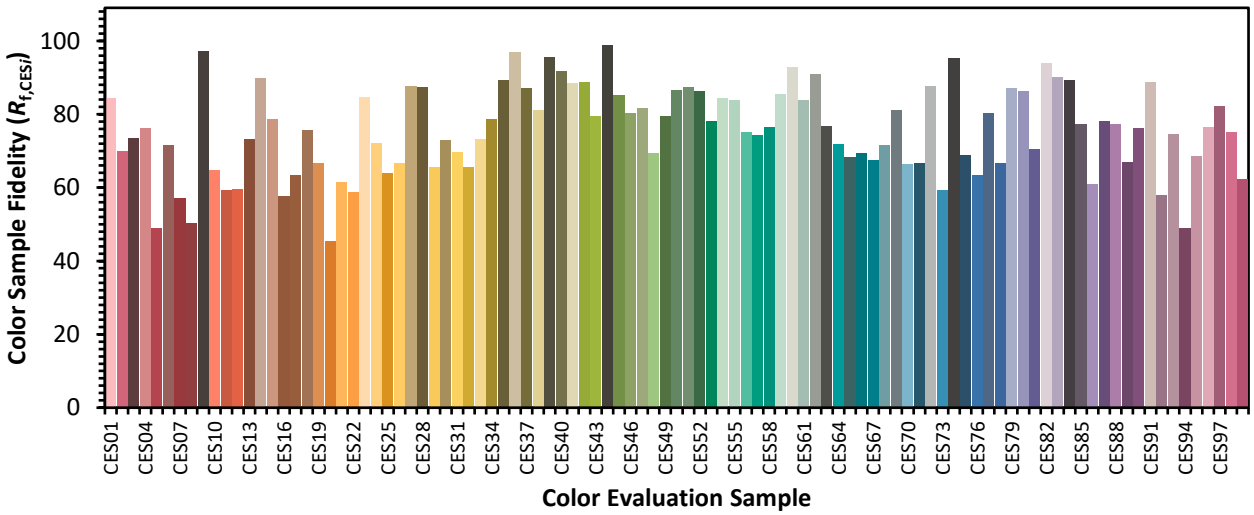
## Individual Sample Fidelity Index ($R_{f,i}$)

| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 67 | CES51 = 87 | CES76 = 63 |
| CES02 = 63 | CES27 = 88 | CES52 = 86 | CES77 = 80 |
| CES03 = 31 | CES28 = 87 | CES53 = 78 | CES78 = 67 |
| CES04 = 71 | CES29 = 66 | CES54 = 84 | CES79 = 87 |
| CES05 = 49 | CES30 = 73 | CES55 = 84 | CES80 = 86 |
| CES06 = 51 | CES31 = 70 | CES56 = 75 | CES81 = 71 |
| CES07 = 41 | CES32 = 65 | CES57 = 74 | CES82 = 94 |
| CES08 = 40 | CES33 = 73 | CES58 = 76 | CES83 = 90 |
| CES09 = 29 | CES34 = 79 | CES59 = 85 | CES84 = 89 |
| CES10 = 76 | CES35 = 89 | CES60 = 93 | CES85 = 77 |
| CES11 = 59 | CES36 = 97 | CES61 = 84 | CES86 = 61 |
| CES12 = 65 | CES37 = 87 | CES62 = 91 | CES87 = 78 |
| CES13 = 43 | CES38 = 81 | CES63 = 77 | CES88 = 77 |
| CES14 = 74 | CES39 = 95 | CES64 = 72 | CES89 = 67 |
| CES15 = 71 | CES40 = 92 | CES65 = 68 | CES90 = 76 |
| CES16 = 47 | CES41 = 88 | CES66 = 69 | CES91 = 89 |
| CES17 = 50 | CES42 = 89 | CES67 = 67 | CES92 = 58 |
| CES18 = 56 | CES43 = 79 | CES68 = 72 | CES93 = 74 |
| CES19 = 73 | CES44 = 99 | CES69 = 81 | CES94 = 49 |
| CES20 = 66 | CES45 = 85 | CES70 = 66 | CES95 = 68 |
| CES21 = 87 | CES46 = 80 | CES71 = 67 | CES96 = 76 |
| CES22 = 79 | CES47 = 82 | CES72 = 88 | CES97 = 82 |
| CES23 = 92 | CES48 = 69 | CES73 = 59 | CES98 = 75 |
| CES24 = 91 | CES49 = 80 | CES74 = 95 | CES99 = 62 |
| CES25 = 73 | CES50 = 87 | CES75 = 69 | |



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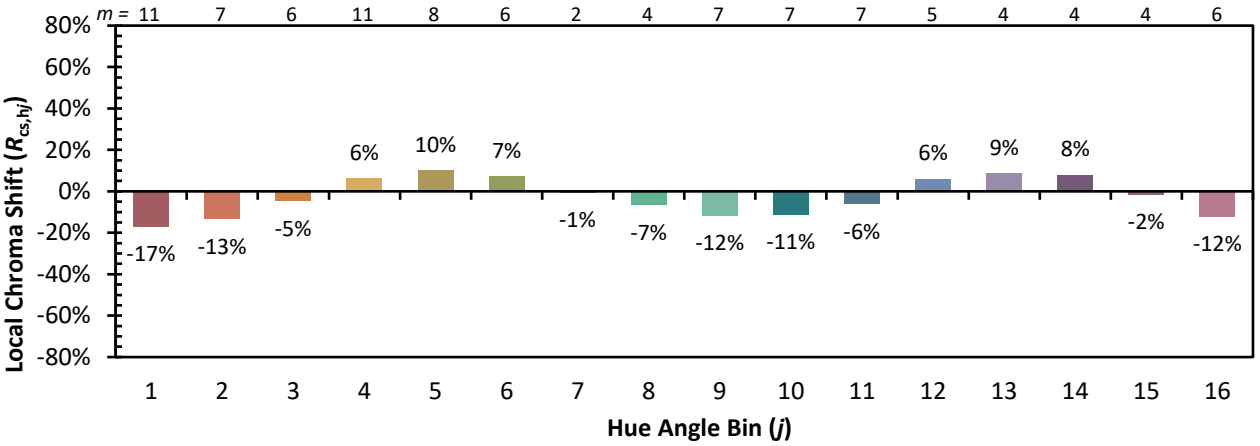
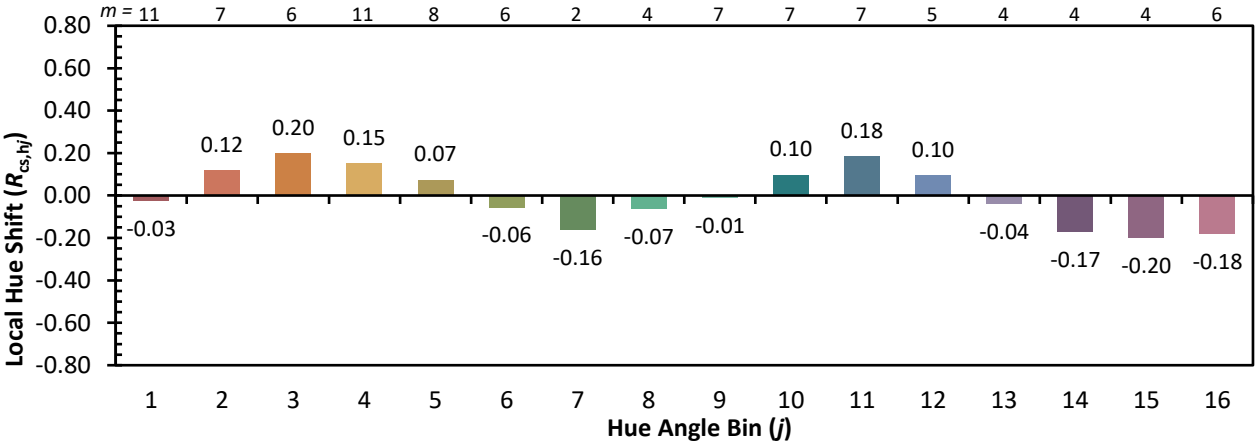
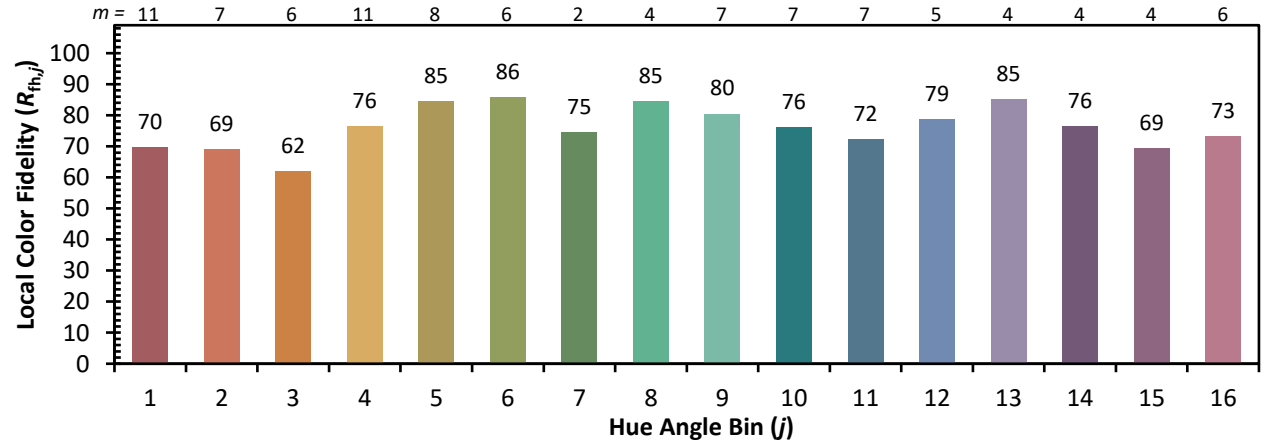
## Color Rendition by Hue-Angle Bin



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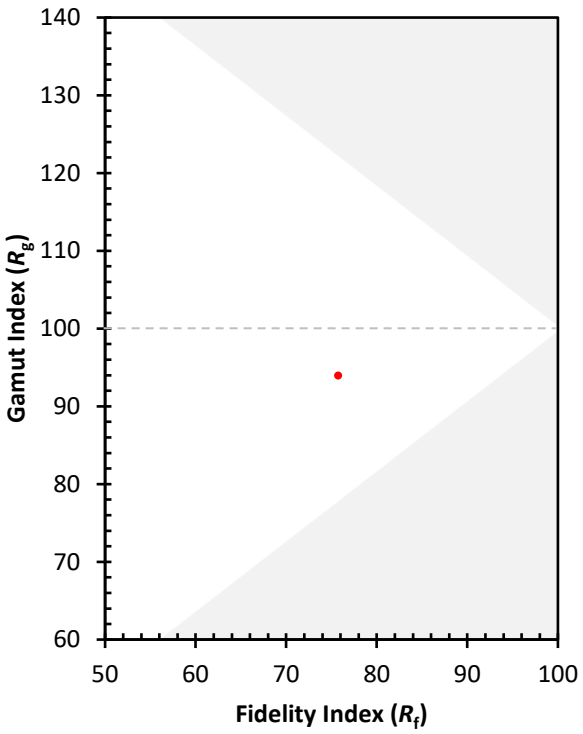
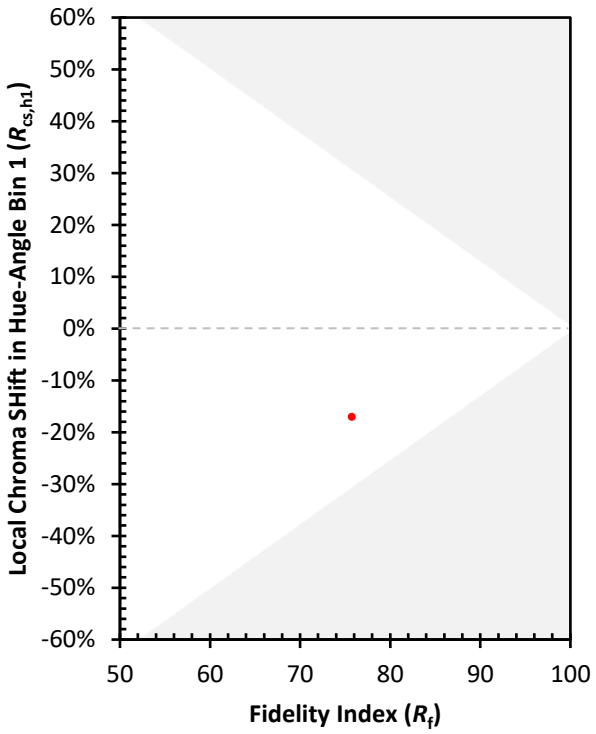
## TM-30-18

### Measure Comparisons




(END OF REPORT)