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: P318573

Luminaire Tested: **GLEON-SA9C-830-U-T3**

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: | P318573 |
| | TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-14) |
| Test Lab: | INNOVATION CENTER |
| Issue Date: | 3/3/2020 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS (FORMERLY EATON) |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | GLEON-SA9C-830-U-T3 |
| Description: | GALLEON AREA AND ROADWAY LUMINAIRE |
| | (9) 80 CRI, 3000K, 1050mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III OPTICS |
| Light Source: | - |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 50258 lumens |
| Efficiency: | N/A |
| Efficacy: | 100.3 lumens/watt |
| Luminous Opening: | Rectangular (W 2.5' x L: 1' x H: 0') |
| IES Classification: | Type III - Short |
| BUG Rating: | B4 - U0 - G5 |

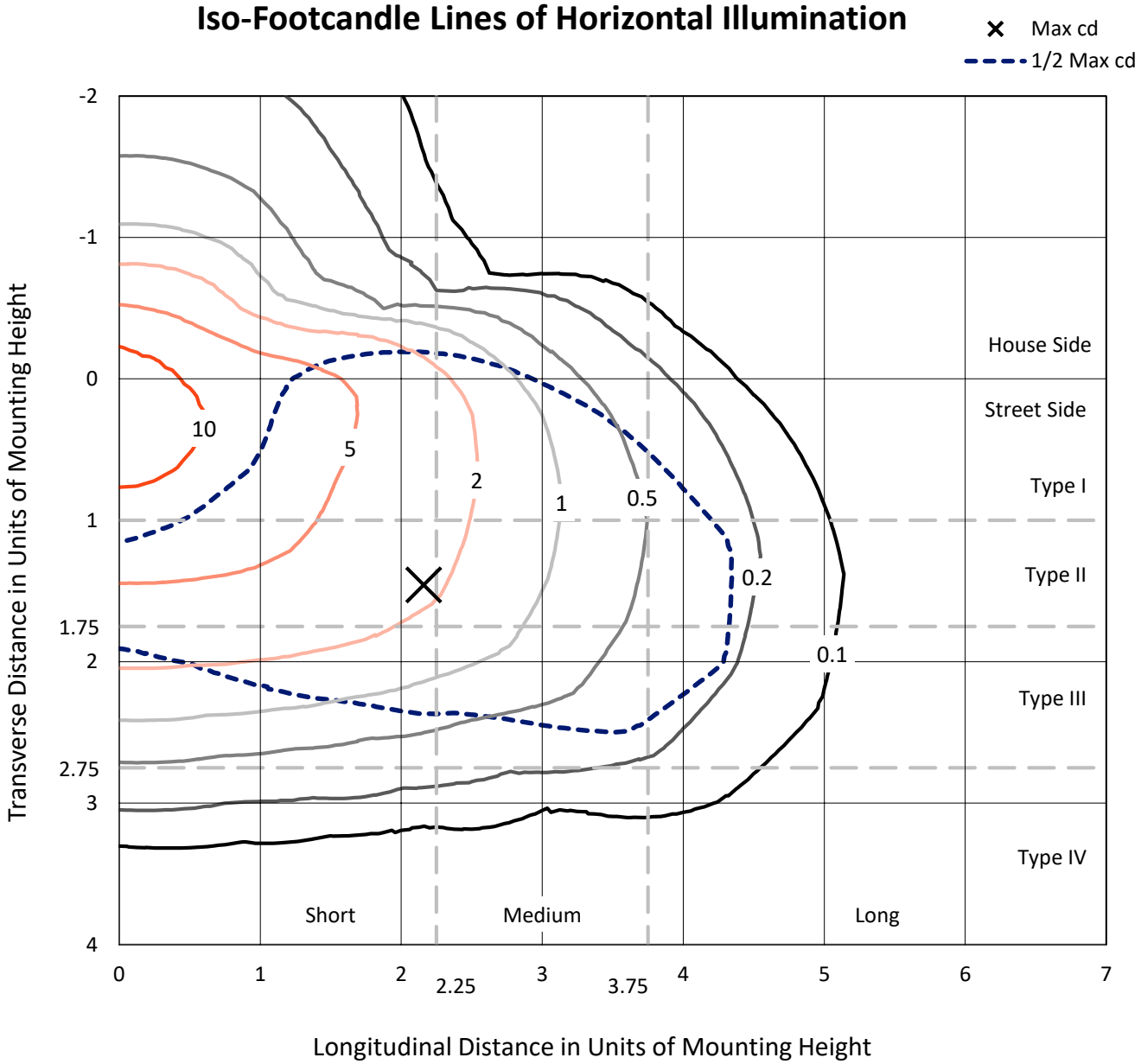
| | |
|---|---|
| Input Watts (W): | 501 |
| Input Voltage (V): | NR |
| Input Current (Ain): | NR |
| Voltage Rise (V): | NR |
| Power Factor: | NR |
| Total Harmonic Distortion (THDi): | NR |
| Frequency (hertz): | 60 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 24 FT |

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

Scaled Data Report

REPORT NUMBER: P318573
CATALOG NUMBER: GLEON-SA9C-830-U-T3

## Iso-Footcandle Lines of Horizontal Illumination



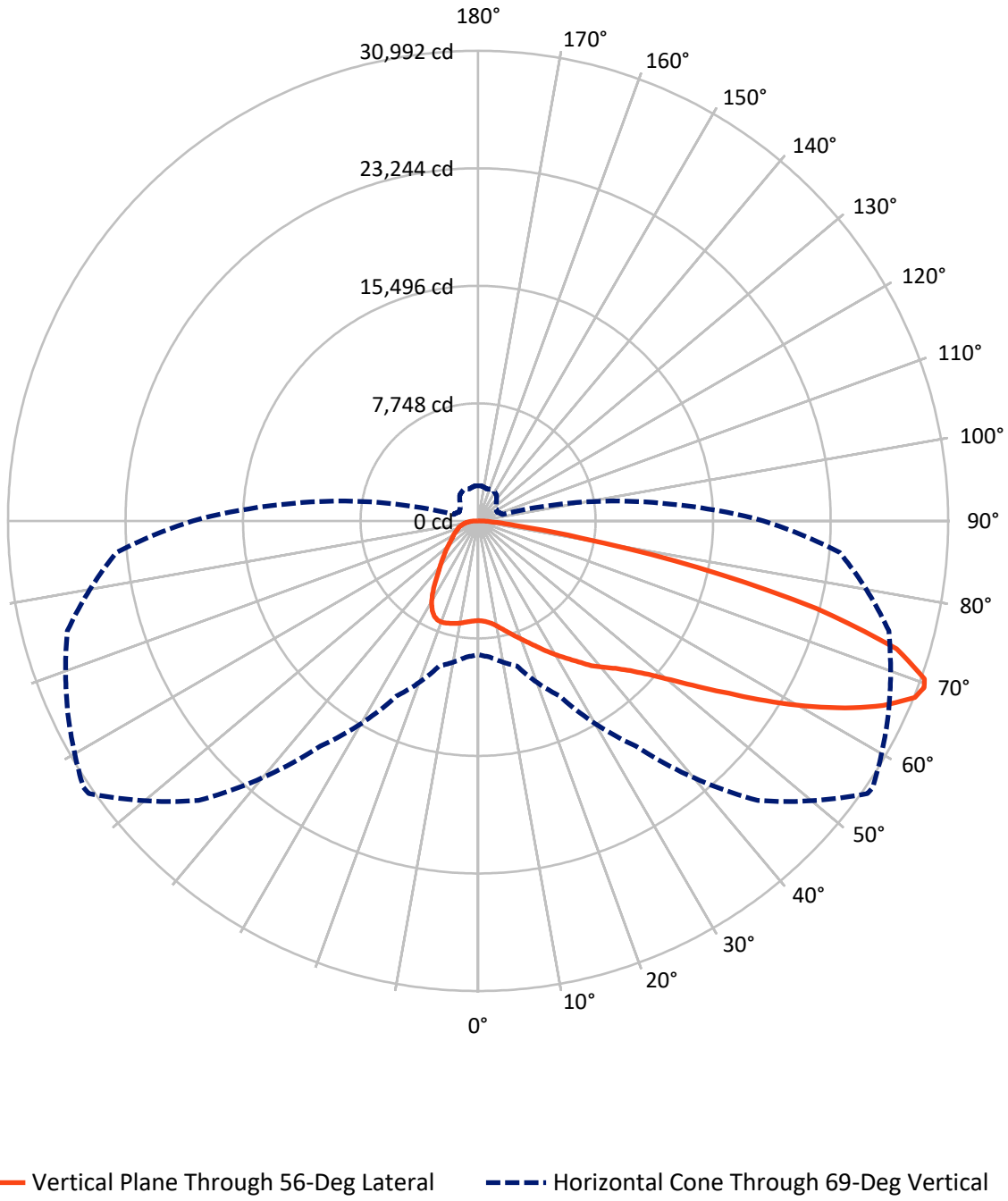

Based on 25 foot mounting height. Maximum calculated value = 11.4 fc
Type III - Short - N/A

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

Scaled Data Report

REPORT NUMBER: P318573
CATALOG NUMBER: GLEON-SA9C-830-U-T3

## Luminous Intensity Polar Plot



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

Scaled Data Report

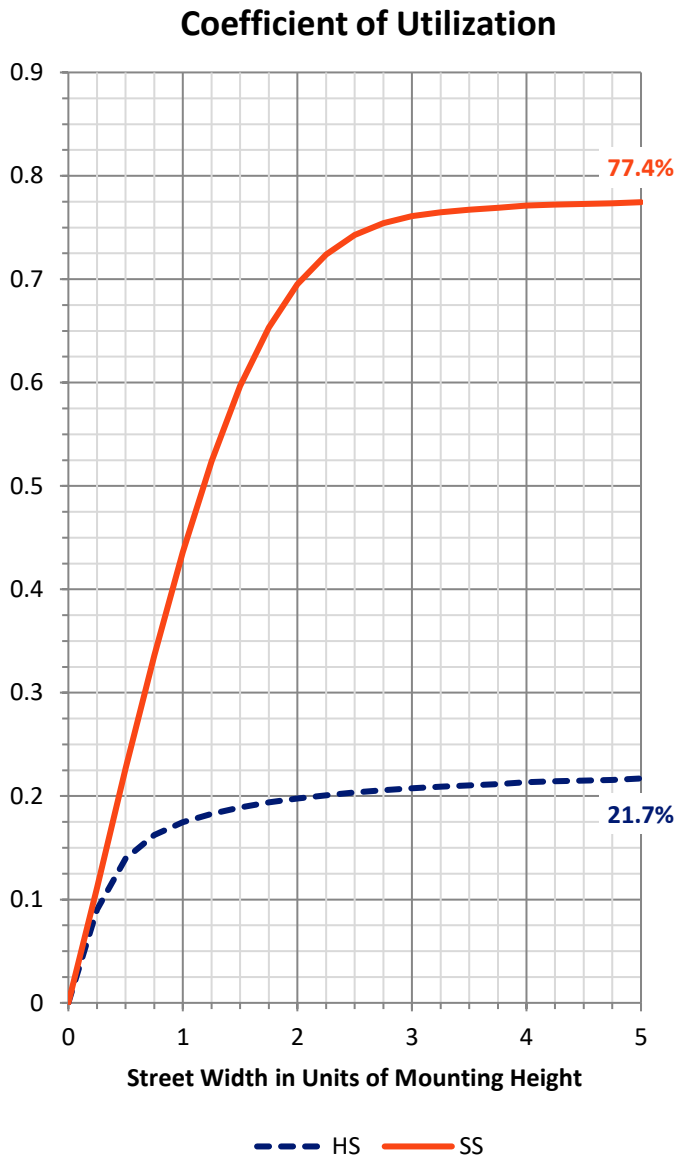
REPORT NUMBER: P318573
CATALOG NUMBER: GLEON-SA9C-830-U-T3

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 11192.4 | 0.0 | 11192.4 |
| | % Fixture | 22.3 | 0.0 | 22.3 |
| **Street Side** | Lumens | 39065.6 | 0.0 | 39065.6 |
| | % Fixture | 77.7 | 0.0 | 77.7 |
| **Total** | Lumens | 50258.0 | 0.0 | 50258.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 645.3 | 1.3 |
| 10°-20° | 2075.1 | 4.1 |
| 20°-30° | 3622.3 | 7.2 |
| 30°-40° | 5203.4 | 10.4 |
| 40°-50° | 7201.2 | 14.3 |
| 50°-60° | 10550.7 | 21.0 |
| 60°-70° | 12863.3 | 25.6 |
| 70°-80° | 7111.7 | 14.2 |
| 80°-90° | 985.0 | 2.0 |
| 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° | 50258.0 | 100.0 |
| 0°-180° | 50258.0 | 100.0 |



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

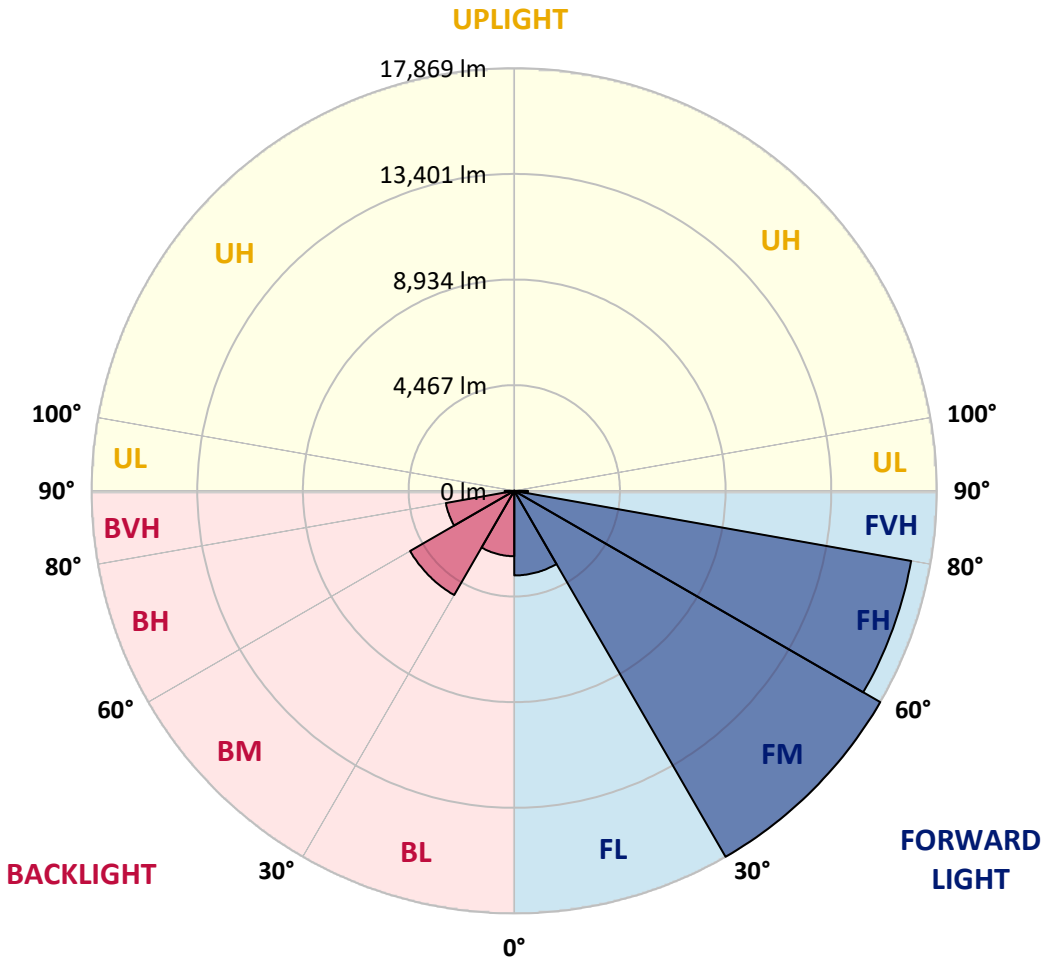
Scaled Data Report

REPORT NUMBER: P318573
CATALOG NUMBER: GLEON-SA9C-830-U-T3

## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 3576.9 | 7.1 | | | |
| FM | (30°-60°) | 17868.6 | 35.6 | | | |
| FH | (60°-80°) | 17040.0 | 33.9 | | | G5 |
| FVH | (80°-90°) | 580.2 | 1.2 | | | G4/750 |
| BL | (0°-30°) | 2765.9 | 5.5 | B4/5000 | | |
| BM | (30°-60°) | 5086.7 | 10.1 | B4/8500 | | |
| BH | (60°-80°) | 2935.0 | 5.8 | B4/5000 | | G4/5000 |
| BVH | (80°-90°) | 404.8 | 0.8 | | | G3/500 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

**BUG Rating: B4-U0-G5**
Type III Short



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

Scaled Data Report

REPORT NUMBER: P318573
CATALOG NUMBER: GLEON-SA9C-830-U-T3

**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 56° | 65° | 75° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 6570.5 | 6570.5 | 6570.5 | 6570.5 | 6570.5 | 6570.5 | 6570.5 | 6570.5 | 6570.5 | 6570.5 | 6570.5 |
| 2.5° | 6612.0 | 6619.0 | 6613.8 | 6627.6 | 6612.0 | 6622.4 | 6613.8 | 6613.8 | 6608.6 | 6593.0 | 6575.7 |
| 5° | 6715.9 | 6729.8 | 6721.1 | 6735.0 | 6715.9 | 6719.4 | 6703.8 | 6703.8 | 6688.2 | 6655.3 | 6620.7 |
| 7.5° | 6878.7 | 6894.2 | 6887.3 | 6901.2 | 6875.2 | 6875.2 | 6854.4 | 6852.7 | 6821.5 | 6767.9 | 6728.0 |
| 10° | 7072.6 | 7093.3 | 7086.4 | 7107.2 | 7086.4 | 7093.3 | 7072.6 | 7072.6 | 7031.0 | 6954.8 | 6904.6 |
| 12.5° | 7354.8 | 7380.7 | 7361.7 | 7360.0 | 7351.3 | 7365.2 | 7347.9 | 7344.4 | 7306.3 | 7202.4 | 7133.2 |
| 15° | 7732.2 | 7759.9 | 7720.1 | 7716.6 | 7668.2 | 7663.0 | 7663.0 | 7657.8 | 7633.5 | 7508.9 | 7394.6 |
| 17.5° | 8166.8 | 8175.4 | 8140.8 | 8085.4 | 8023.1 | 7983.3 | 7978.1 | 7991.9 | 7991.9 | 7846.5 | 7664.7 |
| 20° | 8592.7 | 8608.3 | 8580.6 | 8518.2 | 8438.6 | 8379.7 | 8338.2 | 8365.9 | 8364.2 | 8191.0 | 7933.1 |
| 22.5° | 9056.7 | 9093.1 | 9051.5 | 8971.9 | 8878.4 | 8812.6 | 8739.9 | 8764.1 | 8765.8 | 8552.9 | 8196.2 |
| 25° | 9657.5 | 9624.6 | 9598.6 | 9486.1 | 9352.8 | 9285.2 | 9217.7 | 9242.0 | 9235.0 | 8942.4 | 8468.0 |
| 27.5° | 10189.0 | 10195.9 | 10161.3 | 10041.8 | 9887.7 | 9738.8 | 9735.4 | 9751.0 | 9725.0 | 9347.6 | 8724.3 |
| 30° | 10807.1 | 10810.6 | 10762.1 | 10654.7 | 10486.8 | 10294.6 | 10249.6 | 10275.6 | 10220.2 | 9731.9 | 8994.4 |
| 32.5° | 11421.7 | 11439.0 | 11385.4 | 11255.5 | 11120.5 | 10886.7 | 10796.7 | 10814.0 | 10675.5 | 10124.9 | 9273.1 |
| 35° | 11960.2 | 11984.4 | 11967.1 | 11880.5 | 11733.4 | 11532.5 | 11425.2 | 11414.8 | 11243.4 | 10606.3 | 9641.9 |
| 37.5° | 12509.0 | 12531.5 | 12512.5 | 12439.8 | 12380.9 | 12167.9 | 12110.8 | 12110.8 | 11813.0 | 11098.0 | 10111.1 |
| 40° | 13073.4 | 13108.1 | 13085.6 | 12985.1 | 12934.9 | 12838.0 | 12701.2 | 12668.3 | 12346.3 | 11688.4 | 10876.3 |
| 42.5° | 13598.0 | 13643.0 | 13733.1 | 13674.2 | 13572.1 | 13585.9 | 13310.6 | 13293.3 | 13057.8 | 12561.0 | 11837.2 |
| 45° | 14342.5 | 14408.3 | 14560.7 | 14515.6 | 14494.9 | 14418.7 | 14091.5 | 14075.9 | 13985.9 | 13734.8 | 13030.1 |
| 47.5° | 15154.5 | 15244.5 | 15519.8 | 15528.5 | 15751.8 | 15608.1 | 15163.2 | 15109.5 | 15130.3 | 15140.7 | 14486.2 |
| 50° | 15902.5 | 16001.1 | 16453.0 | 16666.0 | 17192.3 | 17223.5 | 16511.9 | 16463.4 | 16544.8 | 16783.7 | 16182.9 |
| 52.5° | 16499.8 | 16624.4 | 17188.9 | 17846.8 | 18748.8 | 19005.0 | 18172.3 | 18135.9 | 18196.5 | 18608.6 | 18101.3 |
| 55° | 16937.8 | 17072.9 | 17687.5 | 18885.6 | 20326.1 | 20777.9 | 20083.7 | 20049.0 | 20087.1 | 20611.7 | 20187.6 |
| 57.5° | 17040.0 | 17072.9 | 17964.5 | 19585.0 | 21657.5 | 22743.0 | 22422.7 | 22353.5 | 22166.5 | 22623.6 | 22490.2 |
| 60° | 16560.4 | 16692.0 | 17736.0 | 19830.9 | 22687.6 | 24680.4 | 24867.4 | 24780.8 | 24256.2 | 24630.2 | 24522.9 |
| 62.5° | 15587.4 | 15822.8 | 16882.4 | 19456.9 | 23091.0 | 26262.9 | 27265.3 | 27161.4 | 26257.7 | 26500.1 | 25984.1 |
| 65° | 13998.0 | 14098.4 | 15211.6 | 18167.1 | 22578.5 | 27275.7 | 29403.5 | 29351.6 | 28214.1 | 27834.9 | 26254.2 |
| 67.5° | 11155.1 | 11343.8 | 12289.1 | 15471.4 | 20481.9 | 27156.2 | 31057.0 | 31051.8 | 29491.8 | 28330.1 | 25296.8 |
| 69° | 8812.6 | 9008.2 | 9908.5 | 12744.5 | 18123.8 | 26063.8 | 31334.0 | 31394.6 | 29852.0 | 28028.8 | 23929.0 |
| 70° | 7025.8 | 7252.6 | 7870.7 | 10734.4 | 16030.6 | 24623.3 | 31103.7 | 31212.8 | 29782.7 | 27531.9 | 22666.8 |
| 72.5° | 2990.0 | 3173.6 | 3613.3 | 5533.4 | 9770.0 | 18386.9 | 28439.2 | 28851.2 | 28177.7 | 25198.1 | 18733.2 |
| 75° | 1305.4 | 1362.6 | 1561.7 | 2256.0 | 4337.0 | 10007.2 | 22279.0 | 23040.8 | 24093.5 | 21299.1 | 13954.7 |
| 77.5° | 955.7 | 979.9 | 1089.0 | 1324.5 | 1946.0 | 3779.5 | 14326.9 | 14770.2 | 17375.8 | 15499.1 | 8559.8 |
| 80° | 739.3 | 756.6 | 841.4 | 973.0 | 1270.8 | 1528.8 | 6534.1 | 6915.0 | 9770.0 | 7960.8 | 3564.9 |
| 82.5° | 588.7 | 600.8 | 659.6 | 716.8 | 877.8 | 926.3 | 2169.4 | 2406.6 | 3606.4 | 2198.8 | 943.6 |
| 85° | 547.1 | 561.0 | 581.7 | 522.9 | 562.7 | 543.6 | 938.4 | 981.7 | 1089.0 | 863.9 | 394.7 |
| 87.5° | 247.6 | 292.6 | 576.5 | 406.9 | 299.5 | 238.9 | 384.4 | 401.7 | 451.9 | 453.6 | 174.9 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

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

Scaled Data Report

REPORT NUMBER: P318573
CATALOG NUMBER: GLEON-SA9C-830-U-T3

**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 6570.5 | 6570.5 | 6570.5 | 6570.5 | 6570.5 | 6570.5 | 6570.5 | 6570.5 | 6570.5 | 6570.5 | 6570.5 |
| 2.5° | 6586.1 | 6580.9 | 6589.5 | 6568.7 | 6594.7 | 6593.0 | 6584.3 | 6587.8 | 6605.1 | 6603.4 | 6605.1 |
| 5° | 6625.9 | 6622.4 | 6632.8 | 6617.2 | 6648.4 | 6658.8 | 6660.5 | 6676.1 | 6695.1 | 6700.3 | 6700.3 |
| 7.5° | 6726.3 | 6726.3 | 6731.5 | 6710.7 | 6731.5 | 6729.8 | 6721.1 | 6736.7 | 6755.7 | 6757.5 | 6755.7 |
| 10° | 6899.4 | 6901.2 | 6892.5 | 6838.8 | 6821.5 | 6774.8 | 6731.5 | 6733.2 | 6757.5 | 6776.5 | 6781.7 |
| 12.5° | 7117.6 | 7110.7 | 7072.6 | 6973.9 | 6901.2 | 6805.9 | 6760.9 | 6759.2 | 6783.4 | 6799.0 | 6804.2 |
| 15° | 7366.9 | 7347.9 | 7249.2 | 7088.2 | 6960.0 | 6866.5 | 6793.8 | 6776.5 | 6762.7 | 6745.3 | 6747.1 |
| 17.5° | 7602.4 | 7559.1 | 7394.6 | 7171.3 | 7036.2 | 6911.6 | 6771.3 | 6658.8 | 6580.9 | 6535.8 | 6522.0 |
| 20° | 7841.3 | 7756.5 | 7519.3 | 7249.2 | 7077.8 | 6851.0 | 6580.9 | 6352.3 | 6210.4 | 6144.6 | 6132.4 |
| 22.5° | 8059.4 | 7922.7 | 7635.3 | 7330.5 | 7044.9 | 6646.7 | 6222.5 | 5890.1 | 5692.7 | 5604.4 | 5611.3 |
| 25° | 8272.4 | 8081.9 | 7756.5 | 7387.7 | 6878.7 | 6286.5 | 5723.8 | 5315.2 | 5086.7 | 4988.0 | 4984.6 |
| 27.5° | 8459.4 | 8243.0 | 7888.0 | 7340.9 | 6568.7 | 5774.1 | 5133.5 | 4735.2 | 4544.8 | 4460.0 | 4446.1 |
| 30° | 8674.1 | 8445.5 | 8062.9 | 7162.6 | 6115.1 | 5181.9 | 4556.9 | 4276.4 | 4141.4 | 4056.6 | 4041.0 |
| 32.5° | 8935.5 | 8720.8 | 8206.6 | 6838.8 | 5535.1 | 4563.8 | 4106.8 | 3911.1 | 3788.2 | 3693.0 | 3675.7 |
| 35° | 9316.4 | 9084.4 | 8243.0 | 6374.8 | 4898.0 | 4075.6 | 3776.1 | 3575.2 | 3409.0 | 3286.1 | 3274.0 |
| 37.5° | 9794.3 | 9539.7 | 8159.9 | 5774.1 | 4279.9 | 3758.8 | 3500.8 | 3253.2 | 3036.8 | 2863.7 | 2836.0 |
| 40° | 10483.3 | 10099.0 | 7929.6 | 5081.5 | 3824.6 | 3514.6 | 3232.4 | 2950.2 | 2681.9 | 2479.3 | 2439.5 |
| 42.5° | 11310.9 | 10755.2 | 7576.4 | 4392.4 | 3490.4 | 3267.1 | 2965.8 | 2616.1 | 2359.8 | 2216.1 | 2195.4 |
| 45° | 12363.6 | 11437.3 | 7086.4 | 3789.9 | 3161.4 | 3019.5 | 2678.4 | 2356.4 | 2197.1 | 2091.5 | 2074.2 |
| 47.5° | 13565.1 | 12202.6 | 6572.2 | 3300.0 | 2882.7 | 2787.5 | 2448.1 | 2240.4 | 2114.0 | 2030.9 | 2015.3 |
| 50° | 15042.0 | 13066.5 | 6026.8 | 2898.3 | 2602.2 | 2508.7 | 2339.1 | 2176.3 | 2075.9 | 2011.8 | 1996.2 |
| 52.5° | 16707.5 | 14041.3 | 5633.8 | 2581.4 | 2370.2 | 2302.7 | 2281.9 | 2141.7 | 2060.3 | 2011.8 | 1996.2 |
| 55° | 18501.2 | 15033.3 | 5209.6 | 2314.8 | 2169.4 | 2188.4 | 2243.8 | 2145.1 | 2089.7 | 2030.9 | 2008.4 |
| 57.5° | 20296.6 | 16058.3 | 4737.0 | 2089.7 | 2010.1 | 2103.6 | 2217.9 | 2152.1 | 2105.3 | 2048.2 | 2027.4 |
| 60° | 21716.3 | 16707.5 | 4004.6 | 1901.0 | 1883.7 | 2010.1 | 2155.5 | 2100.1 | 2039.5 | 2041.3 | 2037.8 |
| 62.5° | 22379.4 | 16672.9 | 3196.1 | 1733.1 | 1757.3 | 1883.7 | 2055.1 | 2018.8 | 1968.5 | 2036.1 | 2041.3 |
| 65° | 22007.2 | 15841.9 | 2488.0 | 1580.7 | 1622.3 | 1752.1 | 1951.2 | 1978.9 | 1996.2 | 2126.1 | 2143.4 |
| 67.5° | 20445.5 | 14224.8 | 1927.0 | 1447.4 | 1499.3 | 1662.1 | 1961.6 | 2155.5 | 2178.0 | 2314.8 | 2313.1 |
| 69° | *18830.2* | *12708.1* | *1674.2* | *1378.2* | *1438.8* | *1684.6* | *2096.7* | *2268.1* | *2183.2* | *2328.7* | *2307.9* |
| 70° | 17476.3 | 11508.3 | 1539.2 | 1331.4 | 1411.1 | 1724.4 | 2186.7 | 2266.3 | 2157.3 | 2281.9 | 2247.3 |
| 72.5° | 13459.5 | 8279.3 | 1305.4 | 1244.8 | 1317.6 | 1650.0 | 2212.7 | 2216.1 | 2096.7 | 2120.9 | 2062.0 |
| 75° | 9231.6 | 5232.1 | 1139.2 | 1127.1 | 1175.6 | 1487.2 | 2129.6 | 2117.4 | 1939.1 | 1904.5 | 1856.0 |
| 77.5° | 5090.2 | 2657.6 | 967.8 | 1014.6 | 1047.5 | 1317.6 | 1935.7 | 1918.3 | 1771.2 | 1698.5 | 1681.1 |
| 80° | 1963.4 | 1163.5 | 817.2 | 902.0 | 922.8 | 1141.0 | 1696.7 | 1681.1 | 1558.2 | 1464.7 | 1438.8 |
| 82.5° | 741.0 | 609.4 | 675.2 | 780.8 | 773.9 | 941.9 | 1437.0 | 1428.4 | 1308.9 | 1172.1 | 1130.6 |
| 85° | 342.8 | 365.3 | 535.0 | 644.1 | 593.9 | 697.7 | 1149.6 | 1165.2 | 1019.8 | 857.0 | 857.0 |
| 87.5° | 145.4 | 204.3 | 379.2 | 486.5 | 399.9 | 470.9 | 843.2 | 805.1 | 739.3 | 512.5 | 481.3 |
| 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: SP1-2408-195-9

Test Date: 08/07/2024

Luminaire Tested: GALN-SB1A-830-U-5WQ

Data in this report applies to families of products including GALN-SB1A-830-U-5WQ.

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

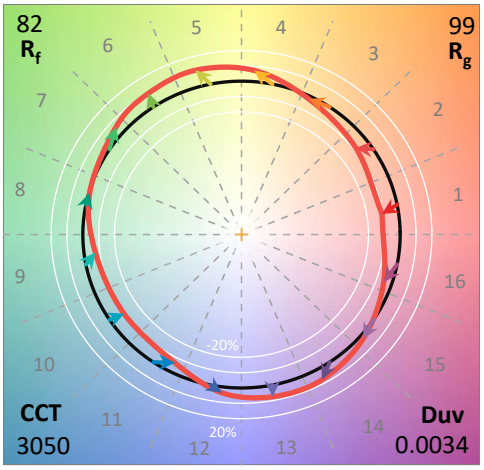
## Test Information

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | SP1-2408-195-9 |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Photometer: | SP1 - 76IN SPHERE |
| Measurement Geometry: | 4π |
| Issue Date: | 08/07/2024 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | MCGRAW EDISON |
| Catalog Number: | **GALN-SB1A-830-U-5WQ** |
| Description: | GALLEON AREA AND ROADWAY LUMINAIRE. (1) 80 CRI, 3000K, 350MA HIGH DENSITY LIGHTSQUARE WITH 26 LEDS AND TYPE V WIDE OPTICS |

## Spectral Parameters

| | | | | | |
|---|---|---|---|---|---|
| CCT (K): | 3050 | CRI (Ra): | 81.0 | | |
| CIE u': | 0.2476 | R1: | 79.6 | R9: | 7.1 |
| CIE v': | 0.5251 | R2: | 85.6 | R10: | 67.0 |
| Duv: | 0.0034 | R3: | 92.0 | R11: | 82.7 |
| CIE x: | 0.4383 | R4: | 82.6 | R12: | 63.2 |
| CIE y: | 0.4131 | R5: | 78.9 | R13: | 80.3 |
| CIE z: | 0.1487 | R6: | 81.7 | R14: | 95.0 |
| Peak Wavelength (nm): | 603 | R7: | 85.2 | R15: | 71.7 |
| Dominant Wavelength (nm): | 581 | R8: | 62.0 | | |
| Purity: | 55.55201 | | | | |

| | |
|---|---|
| Rf: | 81.5 |
| Rg: | 99.2 |




## Test Conditions

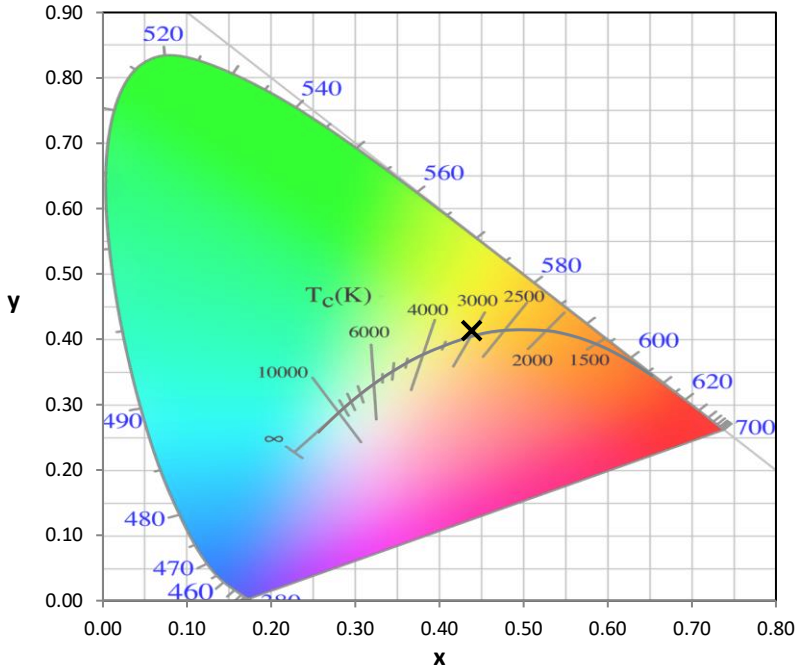
| | |
|---|---|
| Stabilization Time: | 20M |
| Operation Time: | 1H 20M |
| Sphere Temperature (°C): | 24.2 |

REPORT NUMBER: SP1-2408-195-9

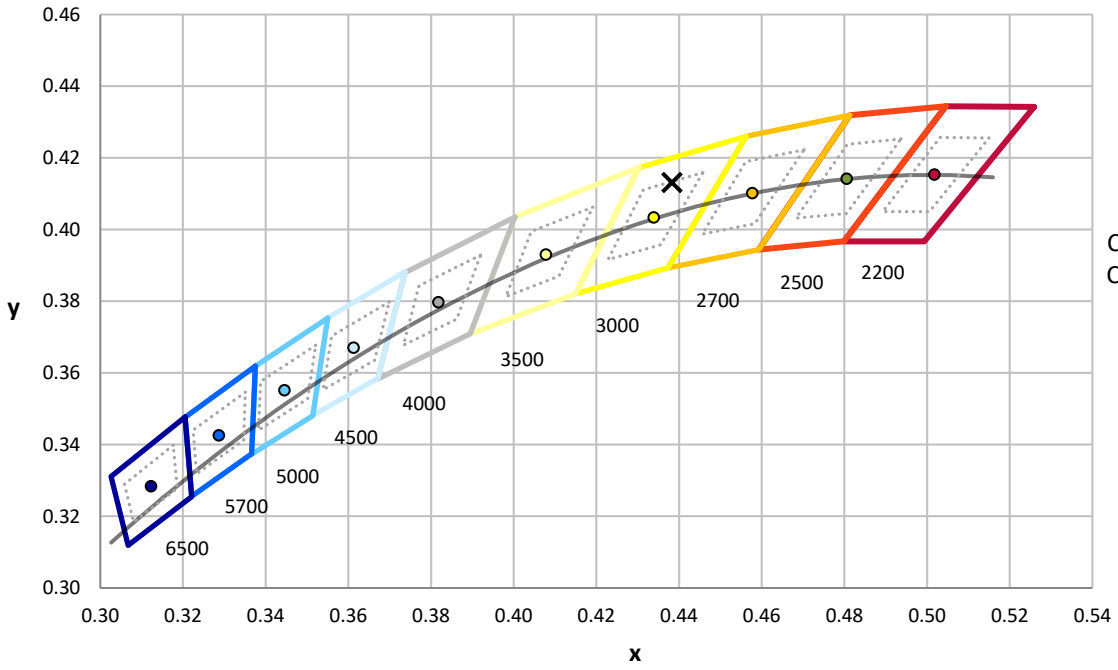
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 2/8/2024 | 2/8/2025 |
| AC Power Source | IN0063 | 10/24/2023 | 10/24/2024 |
| DC 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: SP1-2408-195-9

## CIE 1931 Chromaticity Diagram




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

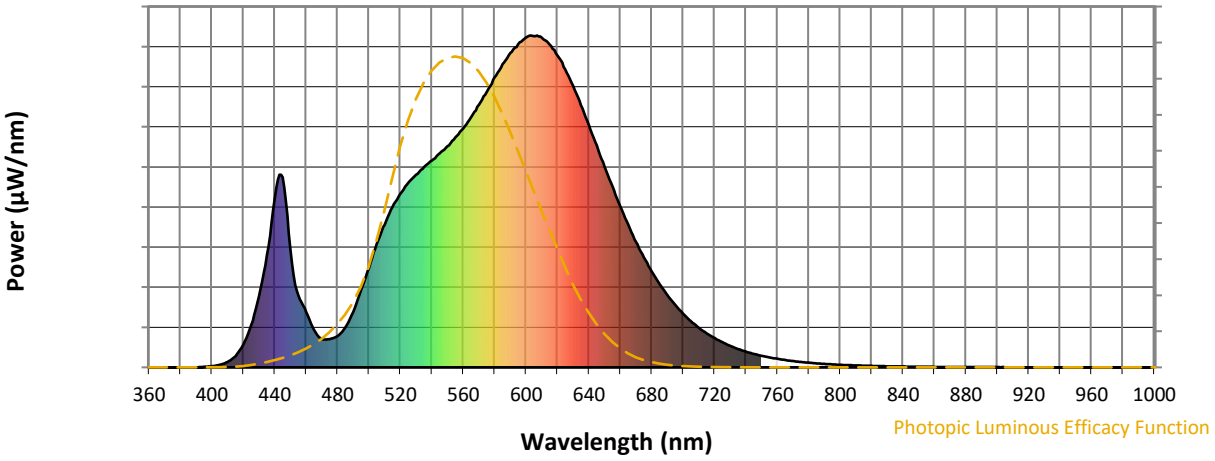



CCT = 3050K
CIE x = 0.4383
CIE y = 0.4131
Duv = 0.0034

Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2408-195-9

## Photopic Flux vs. Wavelength

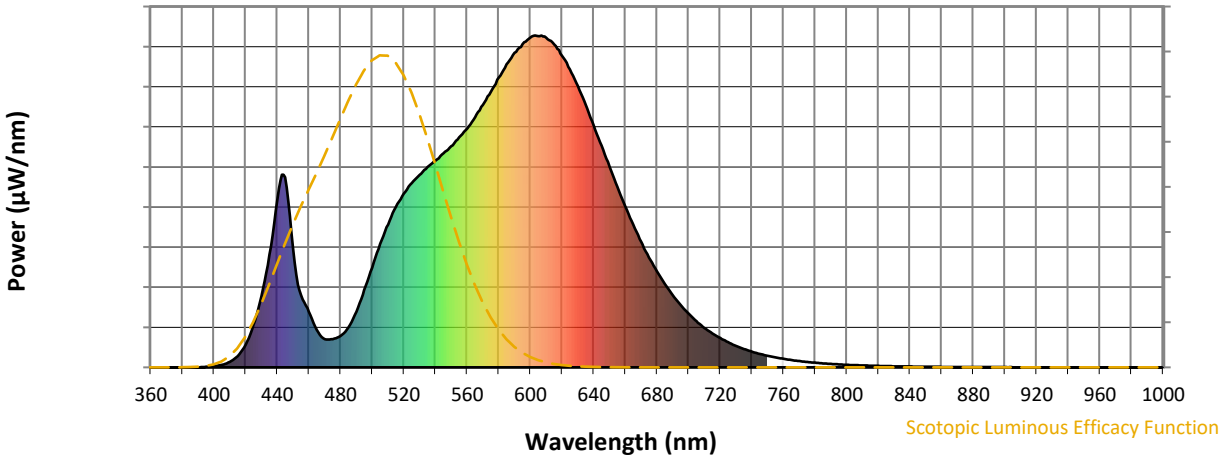



## Photopic Lumens: NR

| 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 | 168 | NR | 620 | 940 | NR | 750 | 35 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 233 | NR | 625 | 897 | NR | 755 | 30 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 300 | NR | 630 | 847 | NR | 760 | 26 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 372 | NR | 635 | 790 | NR | 765 | 22 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 430 | NR | 640 | 730 | NR | 770 | 19 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 483 | NR | 645 | 668 | NR | 775 | 16 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 524 | NR | 650 | 605 | NR | 780 | 14 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 555 | NR | 655 | 545 | NR | 785 | 12 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 581 | NR | 660 | 485 | NR | 790 | 10 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 604 | NR | 665 | 430 | NR | 795 | 9 | NR | 925 | 0 | NR |
| 410 | 17 | NR | 540 | 623 | NR | 670 | 378 | NR | 800 | 8 | NR | 930 | 0 | NR |
| 415 | 34 | NR | 545 | 645 | NR | 675 | 331 | NR | 805 | 7 | NR | 935 | 0 | NR |
| 420 | 68 | NR | 550 | 667 | NR | 680 | 290 | NR | 810 | 6 | NR | 940 | 0 | NR |
| 425 | 128 | NR | 555 | 693 | NR | 685 | 251 | NR | 815 | 5 | NR | 945 | 0 | NR |
| 430 | 214 | NR | 560 | 719 | NR | 690 | 218 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 339 | NR | 565 | 754 | NR | 695 | 188 | NR | 825 | 4 | NR | 955 | 0 | NR |
| 440 | 507 | NR | 570 | 791 | NR | 700 | 162 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 573 | NR | 575 | 830 | NR | 705 | 139 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 356 | NR | 580 | 873 | NR | 710 | 119 | NR | 840 | 3 | NR | 970 | 0 | NR |
| 455 | 217 | NR | 585 | 913 | NR | 715 | 102 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 168 | NR | 590 | 948 | NR | 720 | 88 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 113 | NR | 595 | 974 | NR | 725 | 76 | NR | 855 | 2 | NR | 985 | 0 | NR |
| 470 | 85 | NR | 600 | 994 | NR | 730 | 65 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 85 | NR | 605 | 998 | NR | 735 | 55 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 94 | NR | 610 | 994 | NR | 740 | 47 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 120 | NR | 615 | 973 | NR | 745 | 41 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2408-195-9

## Scotopic Flux vs. Wavelength

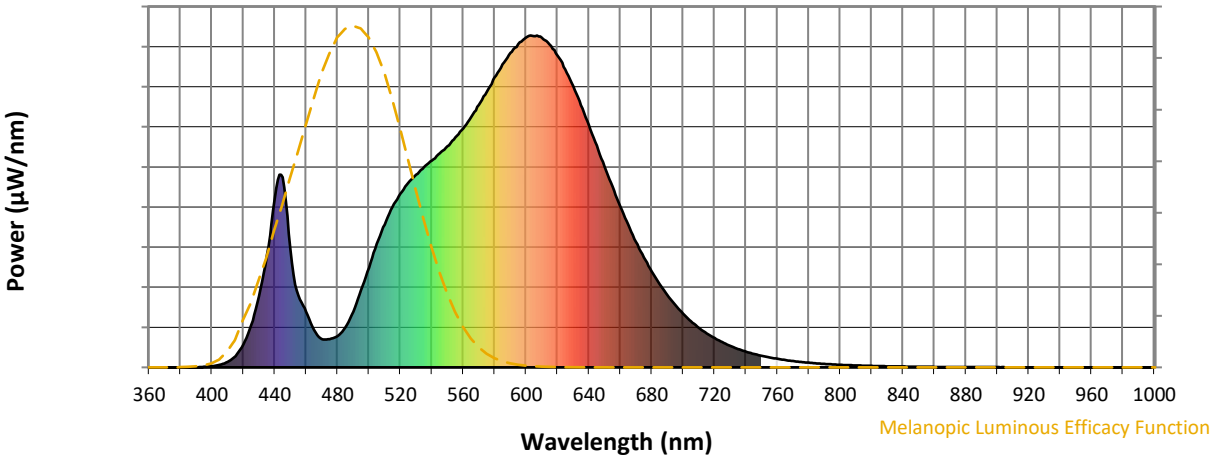



**Scotopic Lumens: NR** **S/P: 1.27**

| 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 | 168 | NR | 620 | 940 | NR | 750 | 35 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 233 | NR | 625 | 897 | NR | 755 | 30 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 300 | NR | 630 | 847 | NR | 760 | 26 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 372 | NR | 635 | 790 | NR | 765 | 22 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 430 | NR | 640 | 730 | NR | 770 | 19 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 483 | NR | 645 | 668 | NR | 775 | 16 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 524 | NR | 650 | 605 | NR | 780 | 14 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 555 | NR | 655 | 545 | NR | 785 | 12 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 581 | NR | 660 | 485 | NR | 790 | 10 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 604 | NR | 665 | 430 | NR | 795 | 9 | NR | 925 | 0 | NR |
| 410 | 17 | NR | 540 | 623 | NR | 670 | 378 | NR | 800 | 8 | NR | 930 | 0 | NR |
| 415 | 34 | NR | 545 | 645 | NR | 675 | 331 | NR | 805 | 7 | NR | 935 | 0 | NR |
| 420 | 68 | NR | 550 | 667 | NR | 680 | 290 | NR | 810 | 6 | NR | 940 | 0 | NR |
| 425 | 128 | NR | 555 | 693 | NR | 685 | 251 | NR | 815 | 5 | NR | 945 | 0 | NR |
| 430 | 214 | NR | 560 | 719 | NR | 690 | 218 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 339 | NR | 565 | 754 | NR | 695 | 188 | NR | 825 | 4 | NR | 955 | 0 | NR |
| 440 | 507 | NR | 570 | 791 | NR | 700 | 162 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 573 | NR | 575 | 830 | NR | 705 | 139 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 356 | NR | 580 | 873 | NR | 710 | 119 | NR | 840 | 3 | NR | 970 | 0 | NR |
| 455 | 217 | NR | 585 | 913 | NR | 715 | 102 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 168 | NR | 590 | 948 | NR | 720 | 88 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 113 | NR | 595 | 974 | NR | 725 | 76 | NR | 855 | 2 | NR | 985 | 0 | NR |
| 470 | 85 | NR | 600 | 994 | NR | 730 | 65 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 85 | NR | 605 | 998 | NR | 735 | 55 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 94 | NR | 610 | 994 | NR | 740 | 47 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 120 | NR | 615 | 973 | NR | 745 | 41 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2408-195-9

## Melanopic Flux vs. Wavelength




**Melanopic Lumens: NR** **M/P: 2.32**

| 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 | 168 | NR | 620 | 940 | NR | 750 | 35 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 233 | NR | 625 | 897 | NR | 755 | 30 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 300 | NR | 630 | 847 | NR | 760 | 26 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 372 | NR | 635 | 790 | NR | 765 | 22 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 430 | NR | 640 | 730 | NR | 770 | 19 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 483 | NR | 645 | 668 | NR | 775 | 16 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 524 | NR | 650 | 605 | NR | 780 | 14 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 555 | NR | 655 | 545 | NR | 785 | 12 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 581 | NR | 660 | 485 | NR | 790 | 10 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 604 | NR | 665 | 430 | NR | 795 | 9 | NR | 925 | 0 | NR |
| 410 | 17 | NR | 540 | 623 | NR | 670 | 378 | NR | 800 | 8 | NR | 930 | 0 | NR |
| 415 | 34 | NR | 545 | 645 | NR | 675 | 331 | NR | 805 | 7 | NR | 935 | 0 | NR |
| 420 | 68 | NR | 550 | 667 | NR | 680 | 290 | NR | 810 | 6 | NR | 940 | 0 | NR |
| 425 | 128 | NR | 555 | 693 | NR | 685 | 251 | NR | 815 | 5 | NR | 945 | 0 | NR |
| 430 | 214 | NR | 560 | 719 | NR | 690 | 218 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 339 | NR | 565 | 754 | NR | 695 | 188 | NR | 825 | 4 | NR | 955 | 0 | NR |
| 440 | 507 | NR | 570 | 791 | NR | 700 | 162 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 573 | NR | 575 | 830 | NR | 705 | 139 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 356 | NR | 580 | 873 | NR | 710 | 119 | NR | 840 | 3 | NR | 970 | 0 | NR |
| 455 | 217 | NR | 585 | 913 | NR | 715 | 102 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 168 | NR | 590 | 948 | NR | 720 | 88 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 113 | NR | 595 | 974 | NR | 725 | 76 | NR | 855 | 2 | NR | 985 | 0 | NR |
| 470 | 85 | NR | 600 | 994 | NR | 730 | 65 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 85 | NR | 605 | 998 | NR | 735 | 55 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 94 | NR | 610 | 994 | NR | 740 | 47 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 120 | NR | 615 | 973 | NR | 745 | 41 | NR | 875 | 1 | NR | | | |

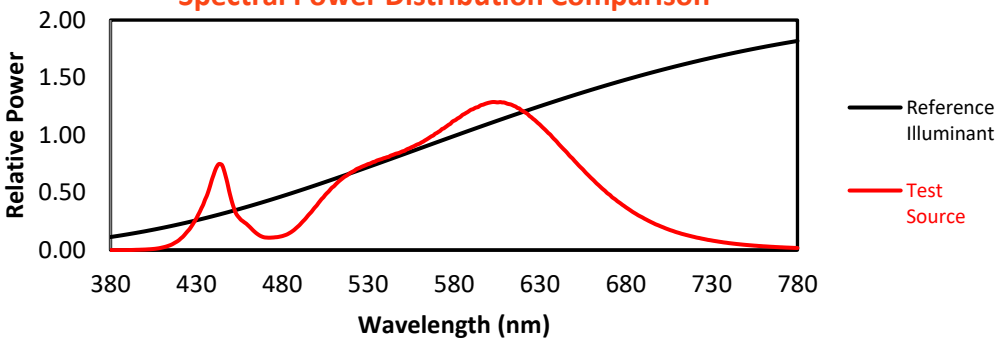
REPORT NUMBER: SP1-2408-195-9

# TM-30-18

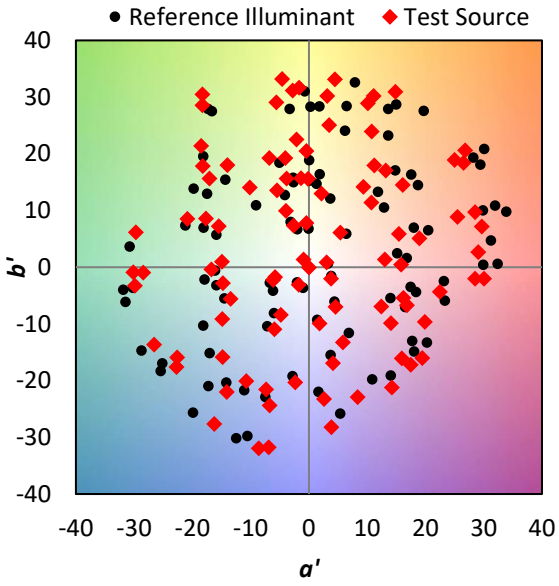
## Summary

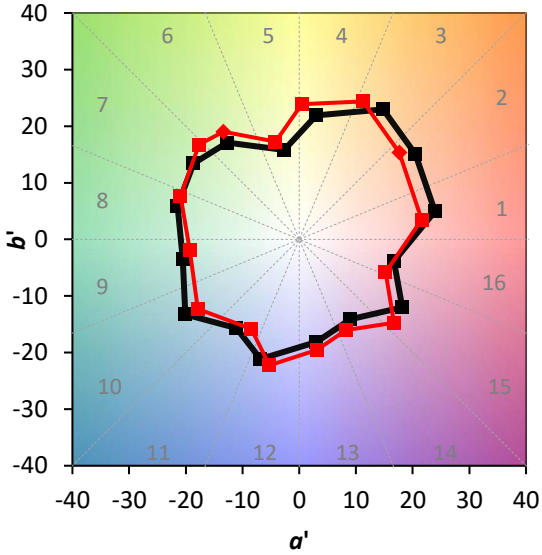
$R_f$ = 81.5
$R_g$ = 99.2
CIE $R_a$ = 81.0
$R_9$ = 7.1

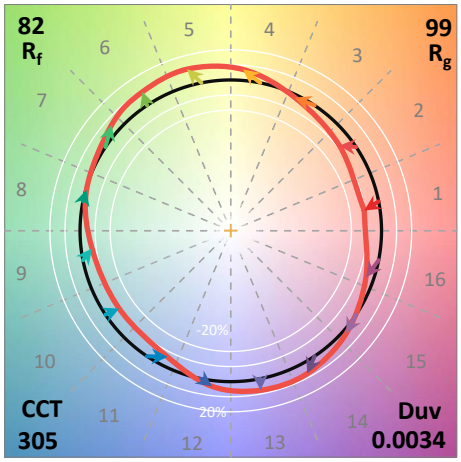
## Spectral Power Distribution Comparison

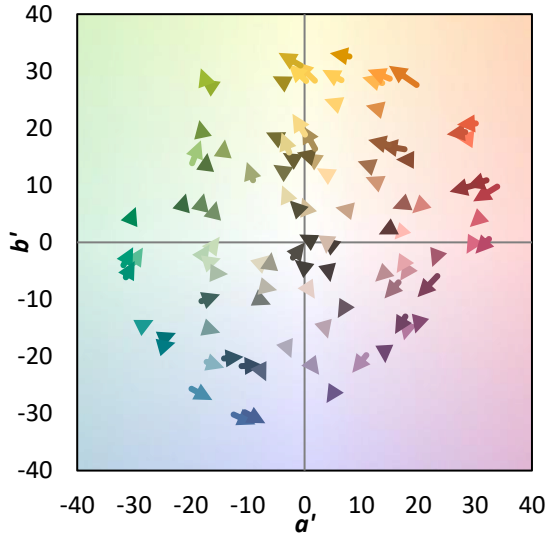



## Color Vector Graphics



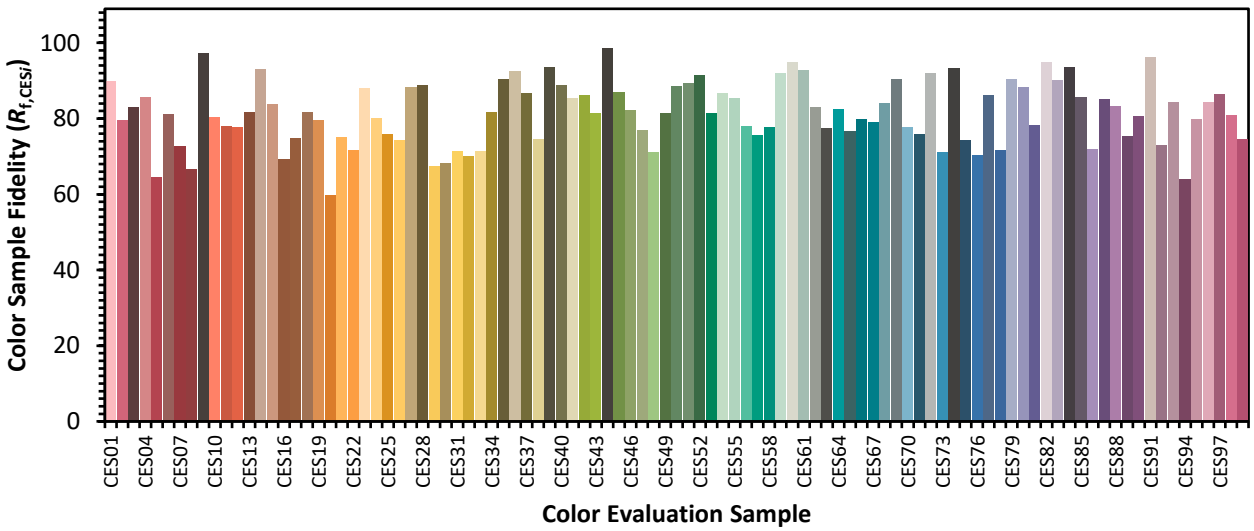



REPORT NUMBER: SP1-2408-195-9

# TM-30-18

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

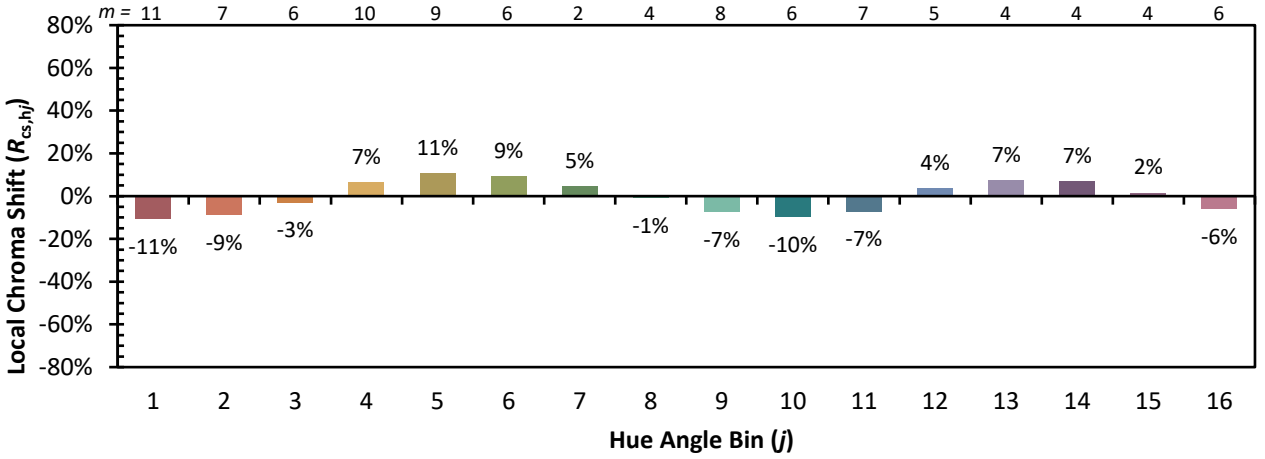
| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 74 | CES51 = 89 | CES76 = 70 |
| CES02 = 63 | CES27 = 88 | CES52 = 92 | CES77 = 86 |
| CES03 = 31 | CES28 = 89 | CES53 = 81 | CES78 = 72 |
| CES04 = 70 | CES29 = 67 | CES54 = 87 | CES79 = 90 |
| CES05 = 50 | CES30 = 68 | CES55 = 85 | CES80 = 88 |
| CES06 = 51 | CES31 = 71 | CES56 = 78 | CES81 = 78 |
| CES07 = 42 | CES32 = 70 | CES57 = 76 | CES82 = 95 |
| CES08 = 41 | CES33 = 71 | CES58 = 78 | CES83 = 90 |
| CES09 = 29 | CES34 = 82 | CES59 = 92 | CES84 = 94 |
| CES10 = 76 | CES35 = 90 | CES60 = 95 | CES85 = 86 |
| CES11 = 59 | CES36 = 93 | CES61 = 93 | CES86 = 72 |
| CES12 = 65 | CES37 = 87 | CES62 = 83 | CES87 = 85 |
| CES13 = 43 | CES38 = 75 | CES63 = 77 | CES88 = 83 |
| CES14 = 74 | CES39 = 94 | CES64 = 83 | CES89 = 75 |
| CES15 = 71 | CES40 = 89 | CES65 = 77 | CES90 = 81 |
| CES16 = 47 | CES41 = 85 | CES66 = 80 | CES91 = 96 |
| CES17 = 50 | CES42 = 86 | CES67 = 79 | CES92 = 73 |
| CES18 = 56 | CES43 = 81 | CES68 = 84 | CES93 = 84 |
| CES19 = 72 | CES44 = 99 | CES69 = 91 | CES94 = 64 |
| CES20 = 66 | CES45 = 87 | CES70 = 78 | CES95 = 80 |
| CES21 = 87 | CES46 = 82 | CES71 = 76 | CES96 = 84 |
| CES22 = 79 | CES47 = 77 | CES72 = 92 | CES97 = 87 |
| CES23 = 92 | CES48 = 71 | CES73 = 71 | CES98 = 81 |
| CES24 = 91 | CES49 = 81 | CES74 = 93 | CES99 = 74 |
| CES25 = 72 | CES50 = 89 | CES75 = 74 | |

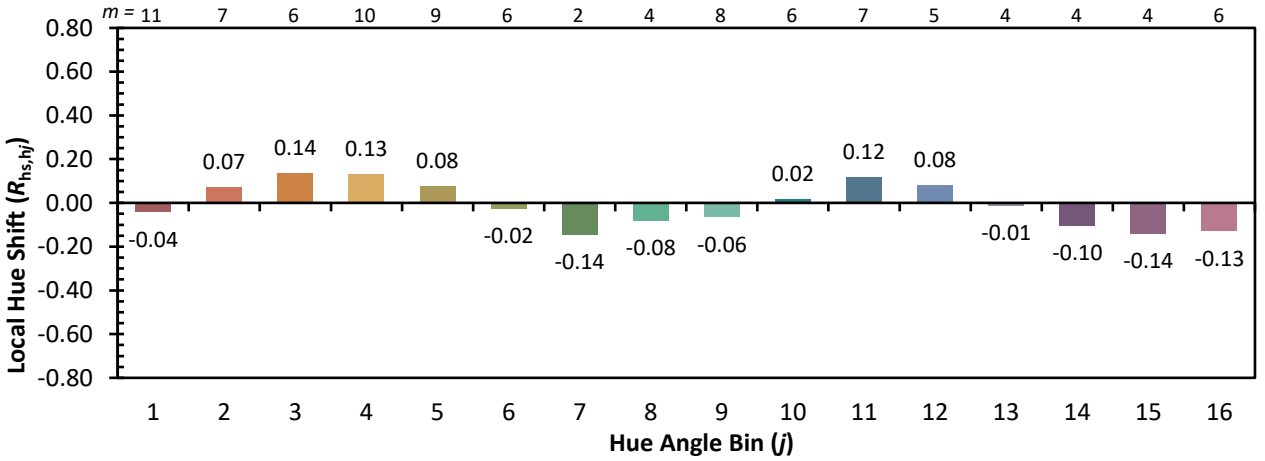


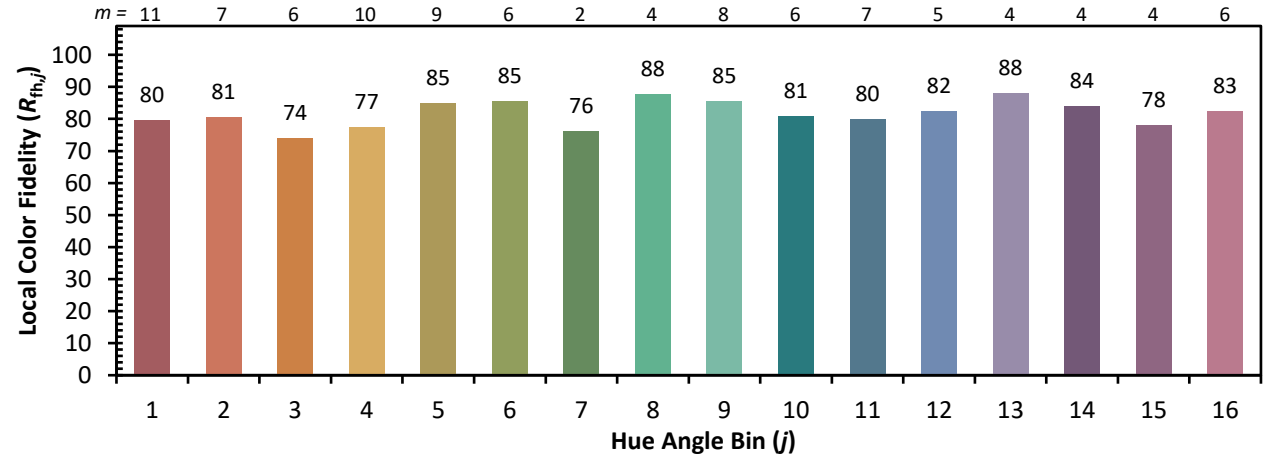
REPORT NUMBER: SP1-2408-195-9

# TM-30-18

## Color Rendition by Hue-Angle Bin



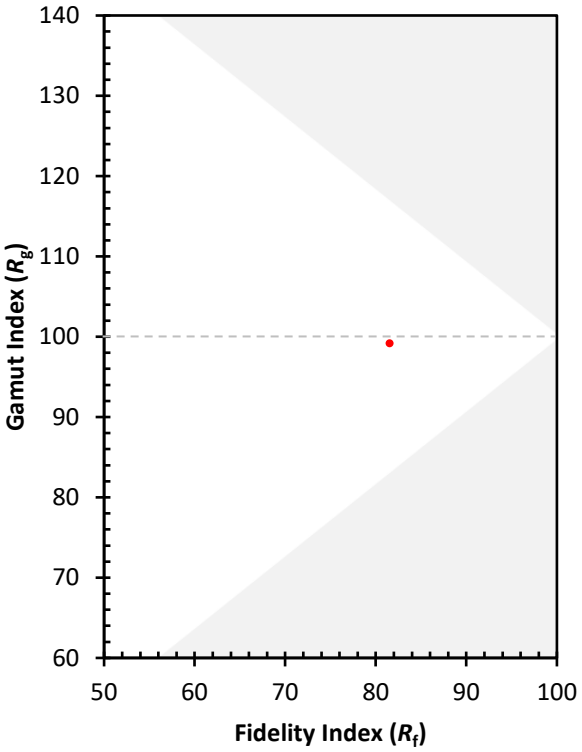



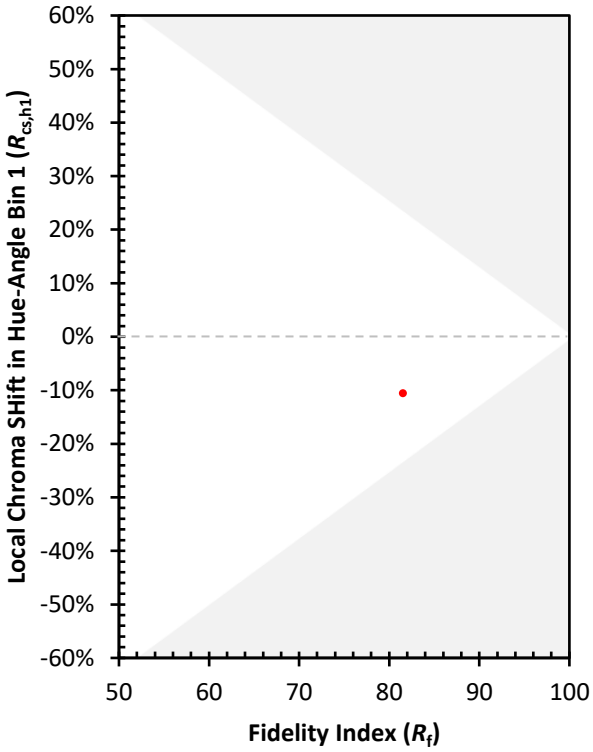



REPORT NUMBER: SP1-2408-195-9

# TM-30-18

## Measure Comparisons




(END OF REPORT)