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: P1357606

Luminaire Tested: **GSS-SB4D-740-U-T4FT**

Issue Date: 02/18/2026

Report Generated By 670245763

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

Scaled Data Report

**Test Information**

| | |
|---|---|
| Test Method: | LM-79-08 |
| Report Number: | P1357606 |
| Test Lab: | INNOVATION CENTER(G3) |
| Issue Date: | 02/18/2026 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS (FORMERLY EATON) |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | GSS-SB4D-740-U-T4FT |
| Description: | GALLEON II SLIM SITE HIGH DENSITY LED ARRAYS 4SQUARE 238W 70CRI 4000K FIXTURE w/ TYPE IV FORWARD THROW DISTRIBUTION OPTIC |
| Light Source: | (104) 4000K CCT, 70 CRI LEDS |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 32049.6 lumens |
| Efficiency: | N/A |
| Efficacy: | 134.7 lumens/watt |
| Luminous Opening: | Rectangular (W 1.5' x L: 1' x H: 0') |
| IES Classification: | Type IV - Short |
| BUG Rating: | B3 - U0 - G4 |

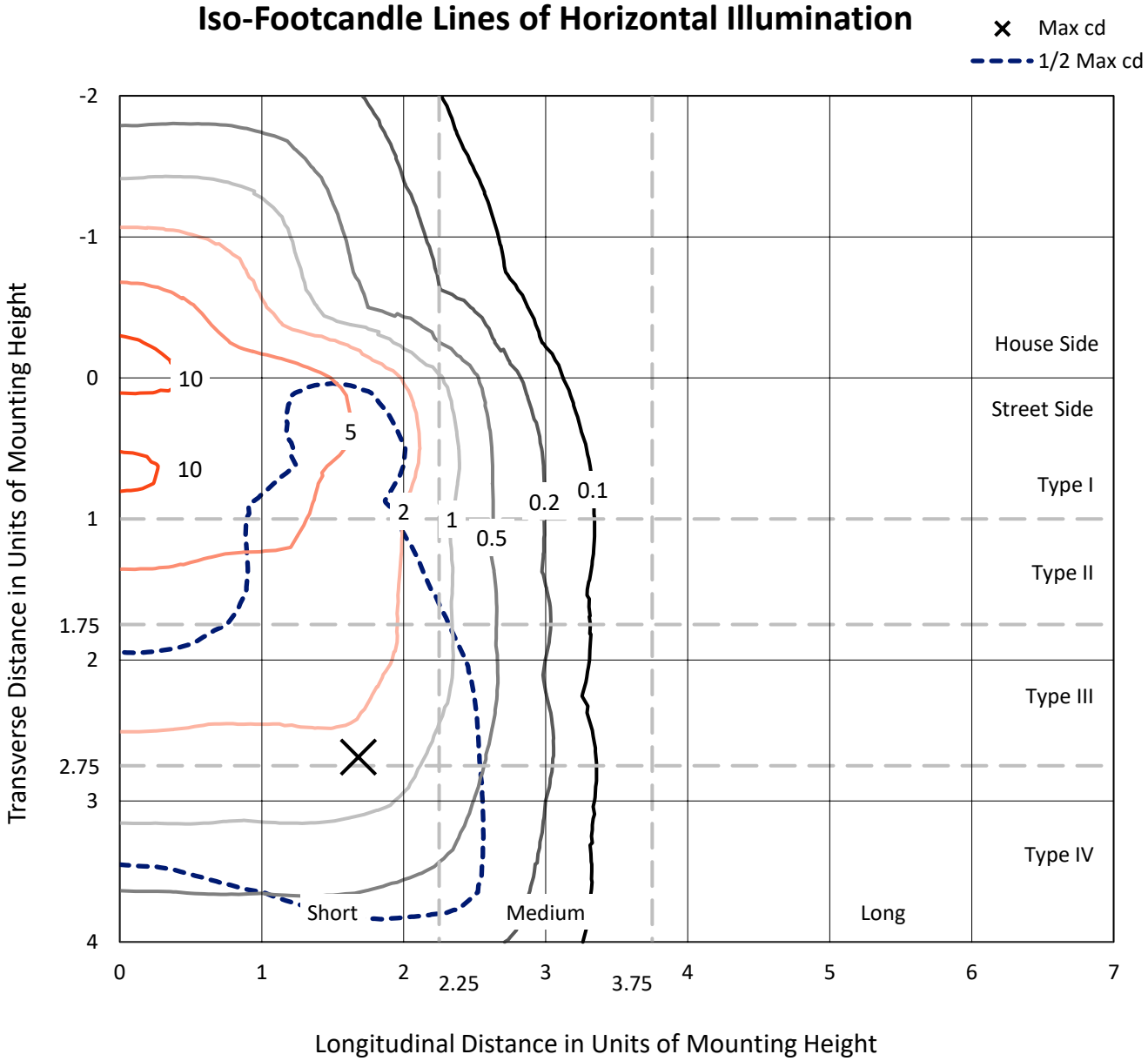
| | |
|---|---|
| Input Watts (W): | 238 |
| Input Voltage (V): | 120 |
| Input Current (Ain): | NR |
| Voltage Rise (V): | NR |
| Power Factor: | 0.98 |
| Total Harmonic Distortion (THDi): | -- |
| Frequency (hertz): | 60 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 28.75 FT |

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

Scaled Data Report

REPORT NUMBER: P1357606
CATALOG NUMBER: GSS-SB4D-740-U-T4FT

## Iso-Footcandle Lines of Horizontal Illumination



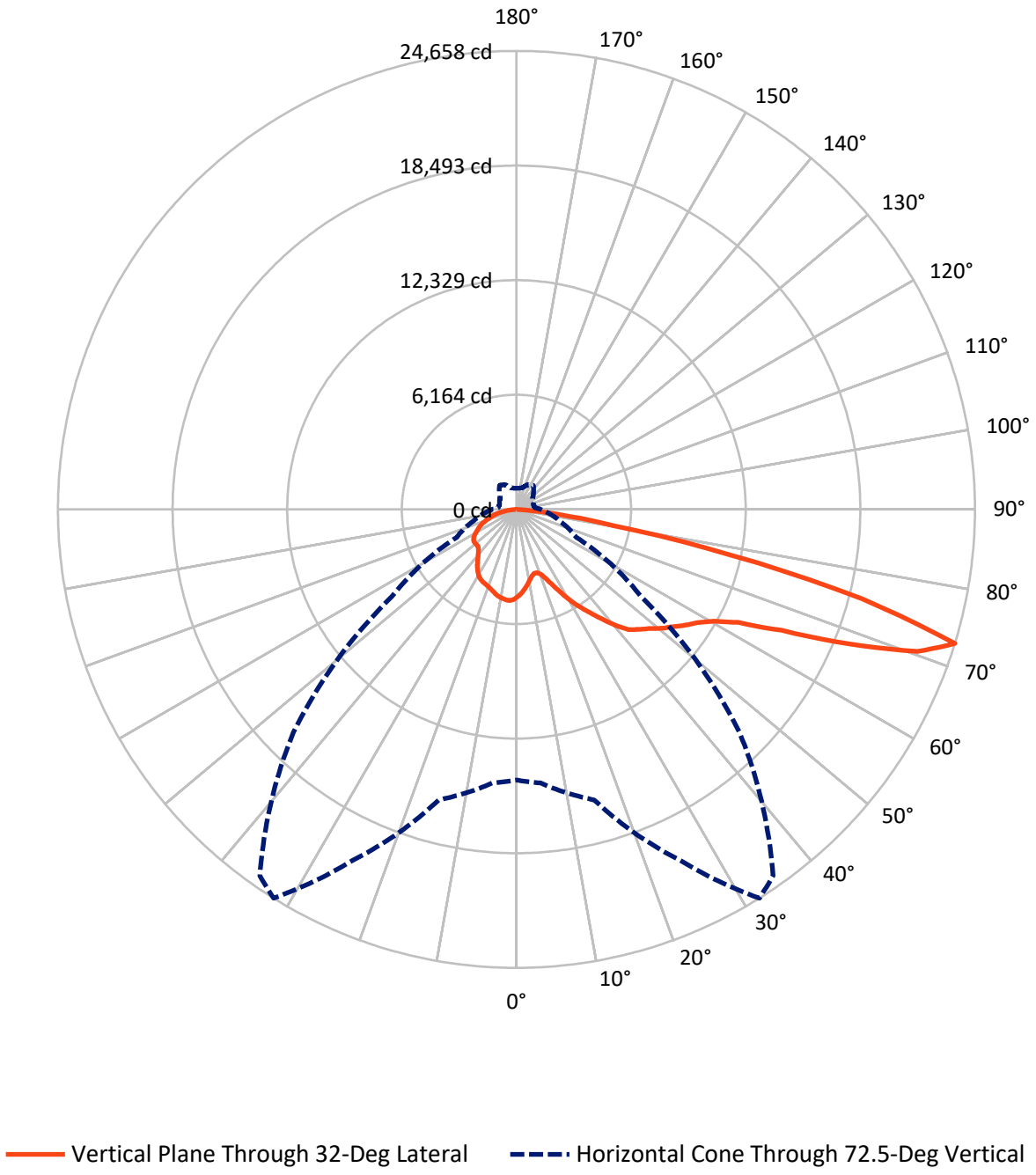

Based on 20 foot mounting height. Maximum calculated value = 11.8 fc
Type IV - Short - N/A

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

Scaled Data Report

REPORT NUMBER: P1357606
CATALOG NUMBER: GSS-SB4D-740-U-T4FT

## Luminous Intensity Polar Plot



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

Scaled Data Report

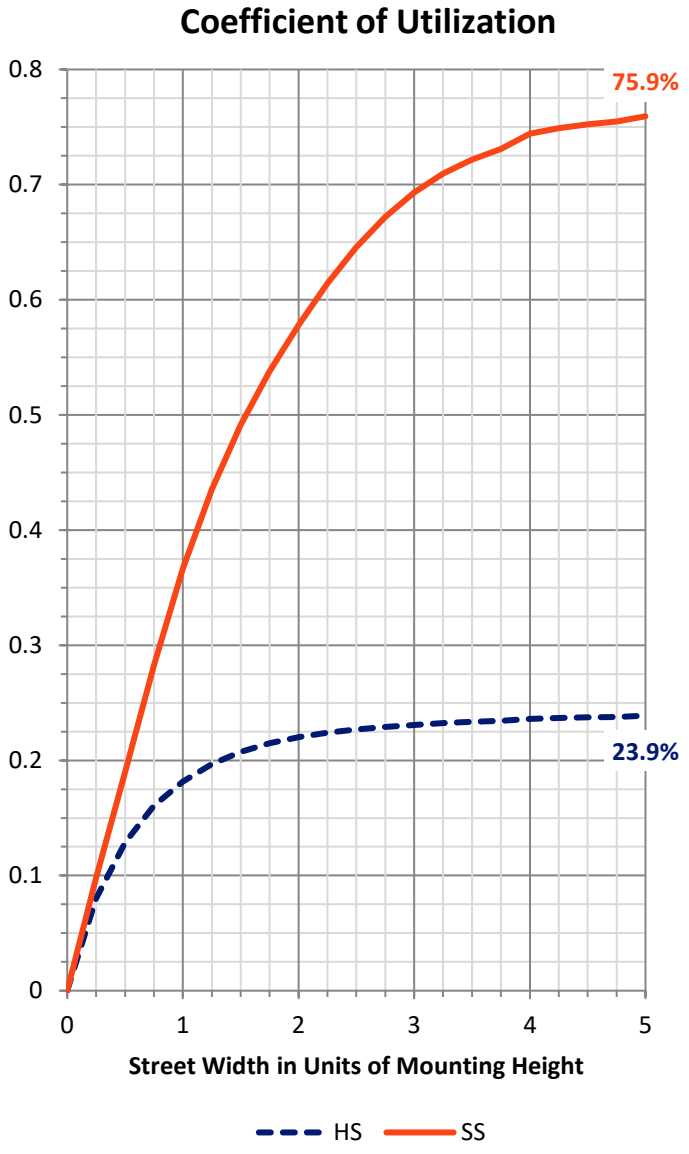
REPORT NUMBER: P1357606
CATALOG NUMBER: GSS-SB4D-740-U-T4FT

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 7729.3 | 0.0 | 7729.3 |
| | % Fixture | 24.1 | 0.0 | 24.1 |
| **Street Side** | Lumens | 24320.3 | 0.0 | 24320.3 |
| | % Fixture | 75.9 | 0.0 | 75.9 |
| **Total** | Lumens | 32049.6 | 0.0 | 32049.6 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 440.3 | 1.4 |
| 10°-20° | 1249.3 | 3.9 |
| 20°-30° | 2164.6 | 6.8 |
| 30°-40° | 3419.2 | 10.7 |
| 40°-50° | 4983.5 | 15.5 |
| 50°-60° | 6755.6 | 21.1 |
| 60°-70° | 7774.9 | 24.3 |
| 70°-80° | 4865.2 | 15.2 |
| 80°-90° | 396.9 | 1.2 |
| 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° | 32049.6 | 100.0 |
| 0°-180° | 32049.6 | 100.0 |



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

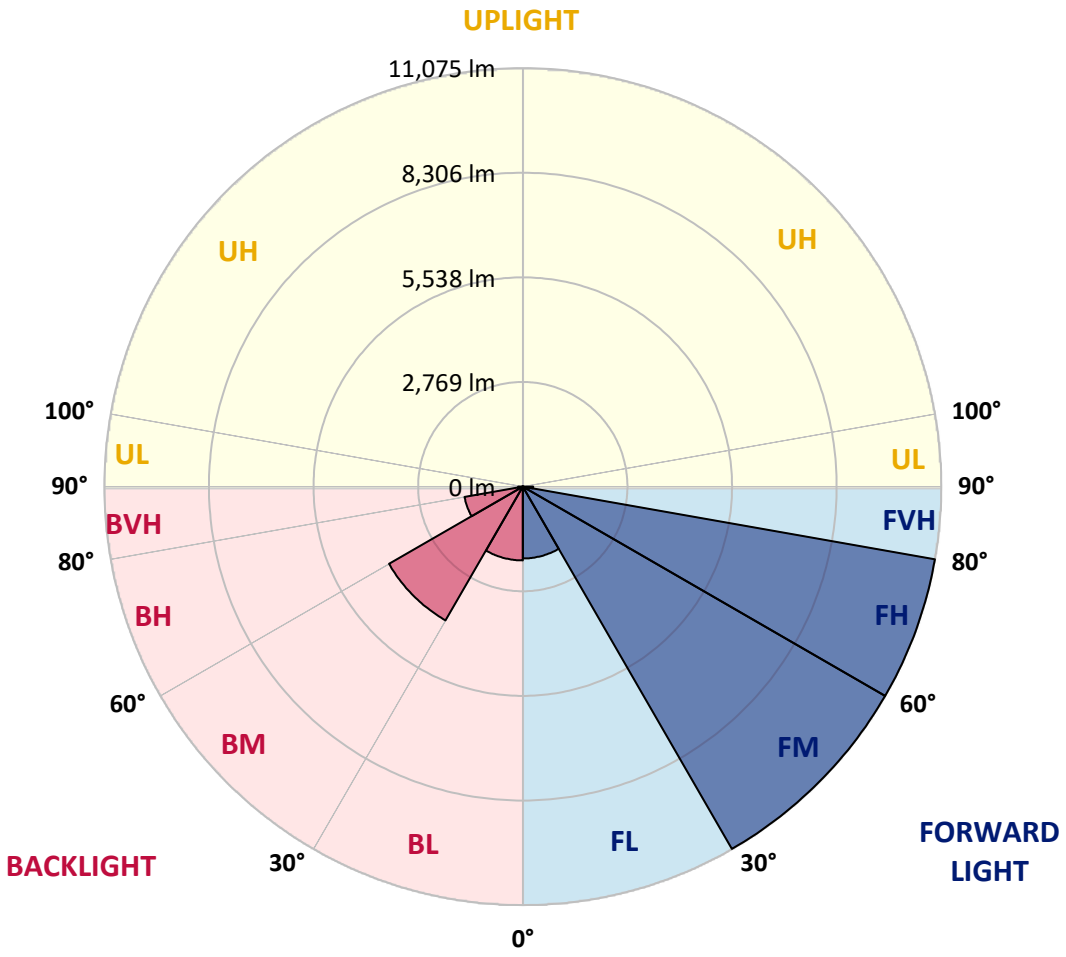
Scaled Data Report

REPORT NUMBER: P1357606
CATALOG NUMBER: GSS-SB4D-740-U-T4FT

## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 1901.2 | 5.9 | | | |
| FM | (30°-60°) | 11071.1 | 34.5 | | | |
| FH | (60°-80°) | 11075.3 | 34.6 | | | G4/12000 |
| FVH | (80°-90°) | 272.7 | 0.9 | | | G3/500 |
| BL | (0°-30°) | 1953.0 | 6.1 | B3/2500 | | |
| BM | (30°-60°) | 4087.2 | 12.8 | B3/5000 | | |
| BH | (60°-80°) | 1564.8 | 4.9 | B3/2500 | | G3/2500 |
| BVH | (80°-90°) | 124.3 | 0.4 | | | G2/225 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

**BUG Rating: B3-U0-G4**
Type IV Short



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

Scaled Data Report

REPORT NUMBER: P1357606
CATALOG NUMBER: GSS-SB4D-740-U-T4FT

**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 32° | 35° | 45° | 55° | 65° | 75° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 4707.6 | 4707.6 | 4707.6 | 4707.6 | 4707.6 | 4707.6 | 4707.6 | 4707.6 | 4707.6 | 4707.6 | 4707.6 |
| 2.5° | 4508.7 | 4501.3 | 4538.2 | 4523.4 | 4552.9 | 4538.2 | 4538.2 | 4582.4 | 4619.2 | 4670.8 | 4707.6 |
| 5° | 4258.2 | 4265.6 | 4258.2 | 4331.9 | 4331.9 | 4339.3 | 4398.2 | 4516.1 | 4604.5 | 4663.4 | 4700.3 |
| 7.5° | 3934.1 | 3948.8 | 3978.3 | 4059.3 | 4110.9 | 4147.7 | 4258.2 | 4383.5 | 4530.8 | 4641.3 | 4773.9 |
| 10° | 3668.9 | 3646.8 | 3713.1 | 3801.5 | 3875.1 | 3912.0 | 4096.2 | 4295.1 | 4494.0 | 4678.2 | 4788.7 |
| 12.5° | 3477.3 | 3477.3 | 3514.1 | 3595.2 | 3676.2 | 3735.2 | 3941.4 | 4184.6 | 4449.8 | 4678.2 | 4884.4 |
| 15° | 3440.5 | 3455.2 | 3469.9 | 3499.4 | 3573.1 | 3602.6 | 3801.5 | 4103.5 | 4398.2 | 4744.5 | 4950.7 |
| 17.5° | 3565.7 | 3551.0 | 3536.2 | 3551.0 | 3580.4 | 3595.2 | 3742.5 | 4037.2 | 4368.7 | 4751.8 | 4987.6 |
| 20° | 3904.6 | 3875.1 | 3853.0 | 3742.5 | 3720.4 | 3735.2 | 3794.1 | 4015.1 | 4376.1 | 4855.0 | 5142.3 |
| 22.5° | 4376.1 | 4390.8 | 4302.4 | 4118.3 | 4029.8 | 4022.5 | 3948.8 | 4096.2 | 4420.3 | 4936.0 | 5274.9 |
| 25° | 5053.9 | 4987.6 | 4899.2 | 4678.2 | 4494.0 | 4427.7 | 4273.0 | 4265.6 | 4516.1 | 5083.4 | 5466.4 |
| 27.5° | 5739.0 | 5702.2 | 5562.2 | 5252.8 | 5046.5 | 4950.7 | 4670.8 | 4530.8 | 4656.1 | 5260.2 | 5687.5 |
| 30° | 6505.2 | 6505.2 | 6276.8 | 5930.6 | 5658.0 | 5481.2 | 5149.7 | 4884.4 | 4891.8 | 5495.9 | 6004.3 |
| 32.5° | 7293.5 | 7249.3 | 7028.3 | 6520.0 | 6247.4 | 6070.6 | 5628.5 | 5355.9 | 5267.5 | 5827.4 | 6438.9 |
| 35° | 7860.8 | 7875.5 | 7669.2 | 7219.8 | 6829.4 | 6659.9 | 6262.1 | 5952.7 | 5753.8 | 6291.6 | 6991.5 |
| 37.5° | 8376.5 | 8391.2 | 8266.0 | 7823.9 | 7477.7 | 7308.2 | 6858.8 | 6645.2 | 6343.1 | 6954.6 | 7654.5 |
| 40° | 8634.3 | 8597.5 | 8560.7 | 8398.6 | 8199.7 | 8067.1 | 7602.9 | 7323.0 | 7057.8 | 7669.2 | 8376.5 |
| 42.5° | 8825.9 | 8825.9 | 8766.9 | 8840.6 | 8840.6 | 8752.2 | 8391.2 | 8140.7 | 7875.5 | 8663.8 | 9142.7 |
| 45° | 9046.9 | 8951.1 | 8951.1 | 9017.4 | 9201.6 | 9260.5 | 9290.0 | 9054.3 | 8811.1 | 9651.0 | 9975.2 |
| 47.5° | 9275.3 | 9297.4 | 9238.4 | 9319.5 | 9577.3 | 9835.2 | 10218.3 | 10004.6 | 9739.4 | 10822.4 | 10918.2 |
| 50° | 9562.6 | 9592.1 | 9592.1 | 9768.9 | 10056.2 | 10358.3 | 11301.3 | 11080.2 | 10638.2 | 12148.5 | 11956.9 |
| 52.5° | 9636.3 | 9651.0 | 9872.0 | 10070.9 | 10490.9 | 10903.4 | 12384.2 | 12067.4 | 11595.9 | 13356.7 | 12863.1 |
| 55° | 9503.7 | 9614.2 | 10012.0 | 10395.1 | 10999.2 | 11492.8 | 13415.6 | 13017.8 | 12295.8 | 14277.6 | 13577.7 |
| 57.5° | 9805.7 | 9849.9 | 10218.3 | 10652.9 | 11492.8 | 12126.4 | 14432.3 | 13865.0 | 12782.1 | 15036.4 | 13865.0 |
| 60° | 10446.7 | 10417.2 | 10741.3 | 11227.6 | 12200.0 | 13017.8 | 15530.0 | 14587.0 | 13187.2 | 15161.7 | 13297.8 |
| 62.5° | 11883.3 | 11735.9 | 11853.8 | 12295.8 | 13386.2 | 14498.6 | 16657.2 | 15176.4 | 12936.8 | 13924.0 | 11382.3 |
| 65° | 13828.2 | 13784.0 | 13710.3 | 14174.5 | 15670.0 | 16620.4 | 18064.3 | 15051.1 | 11684.3 | 11750.6 | 9150.0 |
| 67.5° | 15566.8 | 15625.8 | 15581.6 | 16819.3 | 19331.5 | 20200.8 | 19559.9 | 14145.0 | 9680.5 | 8383.8 | 5886.4 |
| 70° | 16237.3 | 16355.1 | 17136.1 | 19493.6 | 22882.5 | 23891.8 | 20237.6 | 11839.1 | 6704.1 | 4530.8 | 2895.3 |
| 72.5° | 14557.5 | 14771.2 | 16178.3 | 20827.0 | 24657.9 | 24061.2 | 16966.6 | 8170.2 | 3536.2 | 2387.0 | 1613.4 |
| 75° | 10063.6 | 10284.6 | 12421.1 | 17467.6 | 19184.1 | 18204.3 | 10417.2 | 3521.5 | 1827.1 | 1392.4 | 994.6 |
| 77.5° | 3948.8 | 4523.4 | 5923.2 | 9746.8 | 11758.0 | 11537.0 | 4936.0 | 1215.6 | 1016.7 | 847.2 | 648.3 |
| 80° | 1326.1 | 1502.9 | 2202.8 | 3845.7 | 5216.0 | 5510.6 | 1797.6 | 618.8 | 589.4 | 515.7 | 405.2 |
| 82.5° | 478.9 | 537.8 | 943.0 | 1451.3 | 2379.6 | 2394.3 | 582.0 | 331.5 | 361.0 | 309.4 | 213.6 |
| 85° | 162.1 | 176.8 | 221.0 | 449.4 | 582.0 | 626.2 | 162.1 | 125.2 | 147.3 | 132.6 | 95.8 |
| 87.5° | 14.7 | 14.7 | 14.7 | 22.1 | 22.1 | 22.1 | 22.1 | 29.5 | 29.5 | 22.1 | 22.1 |
| 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: P1357606
CATALOG NUMBER: GSS-SB4D-740-U-T4FT

**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 4707.6 | 4707.6 | 4707.6 | 4707.6 | 4707.6 | 4707.6 | 4707.6 | 4707.6 | 4707.6 | 4707.6 | 4707.6 |
| 2.5° | 4715.0 | 4737.1 | 4751.8 | 4781.3 | 4818.1 | 4825.5 | 4855.0 | 4862.3 | 4847.6 | 4862.3 | 4847.6 |
| 5° | 4759.2 | 4796.0 | 4825.5 | 4869.7 | 4899.2 | 4936.0 | 4928.6 | 4906.5 | 4906.5 | 4869.7 | 4928.6 |
| 7.5° | 4818.1 | 4869.7 | 4891.8 | 4936.0 | 4943.4 | 4921.3 | 4891.8 | 4884.4 | 4810.8 | 4810.8 | 4825.5 |
| 10° | 4899.2 | 4943.4 | 4965.5 | 4980.2 | 4936.0 | 4899.2 | 4840.2 | 4803.4 | 4773.9 | 4744.5 | 4751.8 |
| 12.5° | 4958.1 | 5002.3 | 5002.3 | 4950.7 | 4899.2 | 4840.2 | 4788.7 | 4715.0 | 4692.9 | 4656.1 | 4656.1 |
| 15° | 4994.9 | 5068.6 | 5017.0 | 4936.0 | 4832.9 | 4751.8 | 4670.8 | 4604.5 | 4575.0 | 4567.7 | 4597.1 |
| 17.5° | 5090.7 | 5127.6 | 5002.3 | 4862.3 | 4751.8 | 4641.3 | 4552.9 | 4501.3 | 4464.5 | 4457.1 | 4516.1 |
| 20° | 5201.2 | 5171.8 | 4958.1 | 4781.3 | 4656.1 | 4508.7 | 4435.0 | 4420.3 | 4405.6 | 4449.8 | 4449.8 |
| 22.5° | 5311.7 | 5260.2 | 4913.9 | 4715.0 | 4516.1 | 4412.9 | 4346.6 | 4390.8 | 4398.2 | 4427.7 | 4457.1 |
| 25° | 5473.8 | 5348.6 | 4899.2 | 4611.9 | 4354.0 | 4280.3 | 4287.7 | 4346.6 | 4361.4 | 4361.4 | 4376.1 |
| 27.5° | 5650.6 | 5495.9 | 4906.5 | 4457.1 | 4191.9 | 4169.8 | 4221.4 | 4243.5 | 4265.6 | 4243.5 | 4250.9 |
| 30° | 5901.1 | 5650.6 | 4869.7 | 4280.3 | 4051.9 | 4088.8 | 4118.3 | 4110.9 | 4015.1 | 3993.0 | 4007.7 |
| 32.5° | 6269.5 | 5864.3 | 4840.2 | 4140.4 | 3978.3 | 3978.3 | 3948.8 | 3860.4 | 3764.6 | 3676.2 | 3705.7 |
| 35° | 6689.4 | 6129.5 | 4729.7 | 4029.8 | 3904.6 | 3875.1 | 3757.3 | 3609.9 | 3433.1 | 3330.0 | 3337.3 |
| 37.5° | 7131.4 | 6372.6 | 4611.9 | 3904.6 | 3786.7 | 3713.1 | 3543.6 | 3315.2 | 3138.4 | 3035.3 | 3020.5 |
| 40° | 7706.1 | 6645.2 | 4435.0 | 3735.2 | 3624.7 | 3506.8 | 3315.2 | 3064.7 | 2887.9 | 2806.9 | 2851.1 |
| 42.5° | 8288.1 | 6962.0 | 4228.8 | 3499.4 | 3411.0 | 3337.3 | 3123.7 | 2880.6 | 2711.1 | 2659.6 | 2689.0 |
| 45° | 8936.4 | 7286.1 | 4015.1 | 3219.5 | 3175.3 | 3160.5 | 2976.3 | 2784.8 | 2637.4 | 2563.8 | 2556.4 |
| 47.5° | 9599.4 | 7625.0 | 3720.4 | 2969.0 | 2946.9 | 3042.6 | 2902.7 | 2740.6 | 2615.3 | 2497.5 | 2490.1 |
| 50° | 10343.5 | 7956.6 | 3322.6 | 2652.2 | 2755.3 | 2976.3 | 2924.8 | 2748.0 | 2534.3 | 2350.1 | 2320.7 |
| 52.5° | 11006.6 | 8074.4 | 2902.7 | 2401.7 | 2608.0 | 2983.7 | 2946.9 | 2703.8 | 2423.8 | 2202.8 | 2173.3 |
| 55° | 11456.0 | 7875.5 | 2541.7 | 2180.7 | 2497.5 | 2932.1 | 2917.4 | 2637.4 | 2313.3 | 2077.5 | 2048.1 |
| 57.5° | 11485.4 | 7293.5 | 2195.4 | 1996.5 | 2320.7 | 2784.8 | 2829.0 | 2504.8 | 2143.8 | 1944.9 | 1922.8 |
| 60° | 10778.2 | 6335.8 | 1915.5 | 1834.4 | 2129.1 | 2593.2 | 2666.9 | 2320.7 | 1989.1 | 1775.5 | 1760.8 |
| 62.5° | 9194.2 | 5068.6 | 1650.2 | 1657.6 | 1944.9 | 2335.4 | 2475.4 | 2166.0 | 1834.4 | 1628.1 | 1606.0 |
| 65° | 7315.6 | 3875.1 | 1466.1 | 1502.9 | 1709.2 | 2084.9 | 2298.6 | 2011.2 | 1679.7 | 1480.8 | 1451.3 |
| 67.5° | 4913.9 | 2674.3 | 1267.2 | 1340.8 | 1480.8 | 1827.1 | 2121.7 | 1849.2 | 1488.2 | 1326.1 | 1304.0 |
| 70° | 2342.8 | 1554.5 | 1090.3 | 1178.7 | 1267.2 | 1547.1 | 1863.9 | 1620.8 | 1333.5 | 1200.9 | 1193.5 |
| 72.5° | *1304.0* | *994.6* | *943.0* | *1009.3* | *1060.9* | *1296.6* | *1576.6* | *1466.1* | *1193.5* | *1141.9* | *1134.5* |
| 75° | 832.5 | 707.2 | 751.5 | 832.5 | 862.0 | 1024.0 | 1362.9 | 1311.4 | 1075.6 | 1105.1 | 1105.1 |
| 77.5° | 515.7 | 486.2 | 574.6 | 648.3 | 670.4 | 839.9 | 1119.8 | 1112.4 | 898.8 | 884.1 | 780.9 |
| 80° | 331.5 | 324.2 | 412.6 | 419.9 | 456.8 | 640.9 | 891.4 | 854.6 | 677.8 | 618.8 | 582.0 |
| 82.5° | 176.8 | 184.2 | 250.5 | 265.2 | 257.9 | 390.5 | 611.5 | 604.1 | 501.0 | 434.7 | 412.6 |
| 85° | 66.3 | 66.3 | 95.8 | 117.9 | 125.2 | 198.9 | 324.2 | 331.5 | 272.6 | 206.3 | 213.6 |
| 87.5° | 14.7 | 14.7 | 14.7 | 22.1 | 22.1 | 44.2 | 58.9 | 66.3 | 73.7 | 36.8 | 22.1 |
| 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: SP1-2407-184-1

Test Date: 10/09/2024

Luminaire Tested: GSS-SB1A-740-U-5WQ

Data in this report applies to families of products including GSS-SB1A-740-U-5WQ

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

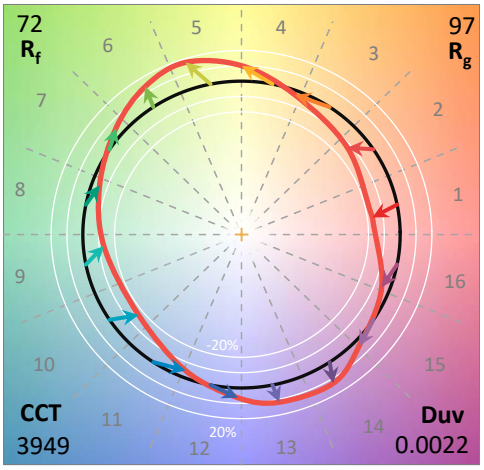
## Test Information

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | SP1-2407-184-1 |
| 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-740-U-5WQ** |
| Description: | GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI 4000K CCT 26 LEDS |

## Spectral Parameters

| | |
|---|---|
| CCT (K): | 3949 |
| CIE u': | 0.2248 |
| CIE v': | 0.5053 |
| Duv: | 0.0022 |
| CIE x: | 0.3844 |
| CIE y: | 0.3840 |
| CIE z: | 0.2316 |
| Peak Wavelength (nm): | 440 |
| Dominant Wavelength (nm): | 578 |
| Purity: | 30.60026 |
| Rf: | 71.8 |
| Rg: | 96.5 |

| | |
|---|---|
| CRI (Ra): | 70.7 |
| R1: | 68.0 |
| R2: | 76.0 |
| R3: | 84.3 |
| R4: | 72.0 |
| R5: | 68.6 |
| R6: | 68.3 |
| R7: | 77.9 |
| R8: | 50.3 |
| R9: | -36.7 |
| R10: | 45.1 |
| R11: | 70.7 |
| R12: | 47.1 |
| R13: | 68.5 |
| R14: | 91.1 |
| R15: | 58.7 |




## Test Conditions

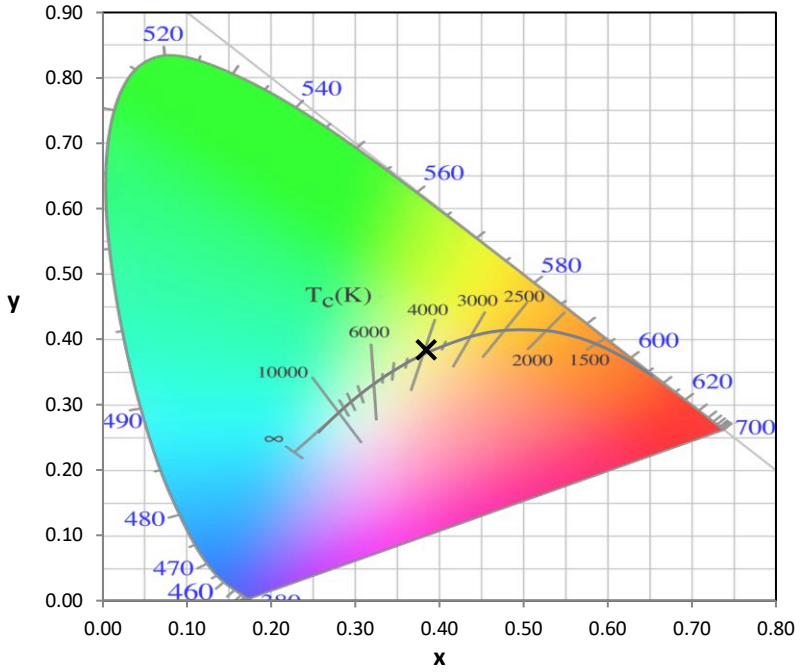
| | |
|---|---|
| Stabilization Time: | 34M |
| Operation Time: | 1H 34M |
| Sphere Temperature (°C): | 25.2 |

REPORT NUMBER: SP1-2407-184-1

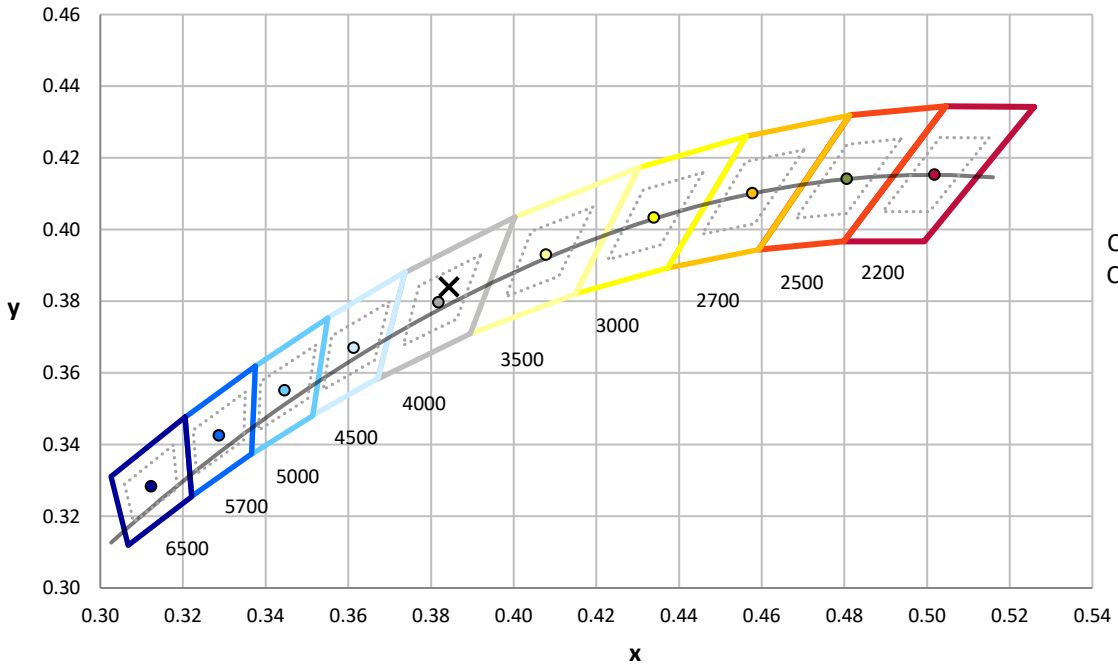
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 2/8/2024 | 2/8/2025 |
| AC Power Source | IN0063 | 10/24/2023 | 10/24/2024 |
| DC 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: SP1-2407-184-1

## CIE 1931 Chromaticity Diagram




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

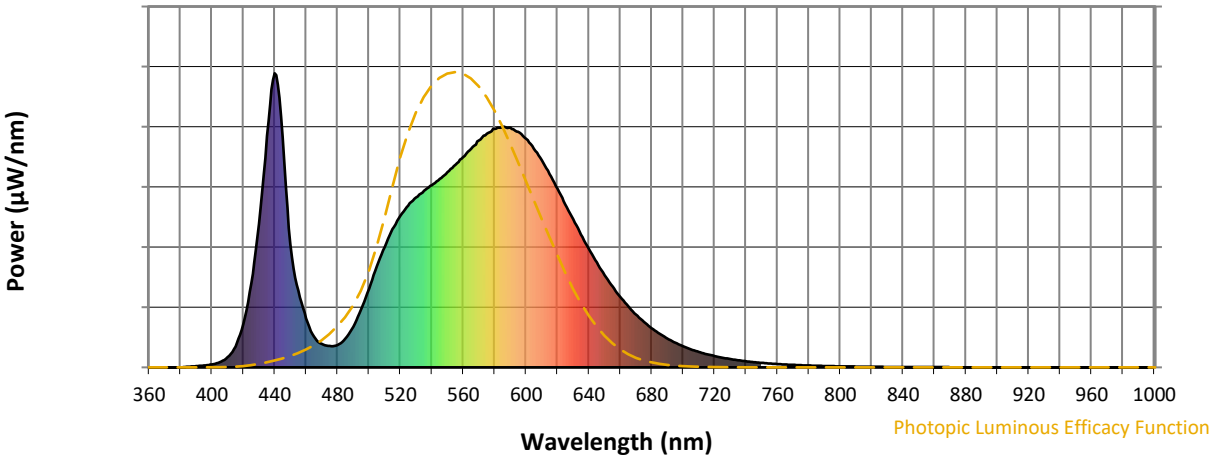



CCT = 3949K
CIE x = 0.3844
CIE y = 0.3840
Duv = 0.0022

Point lies inside the ANSI 4000K 4-step quadrangle

REPORT NUMBER: SP1-2407-184-1

## Photopic Flux vs. Wavelength

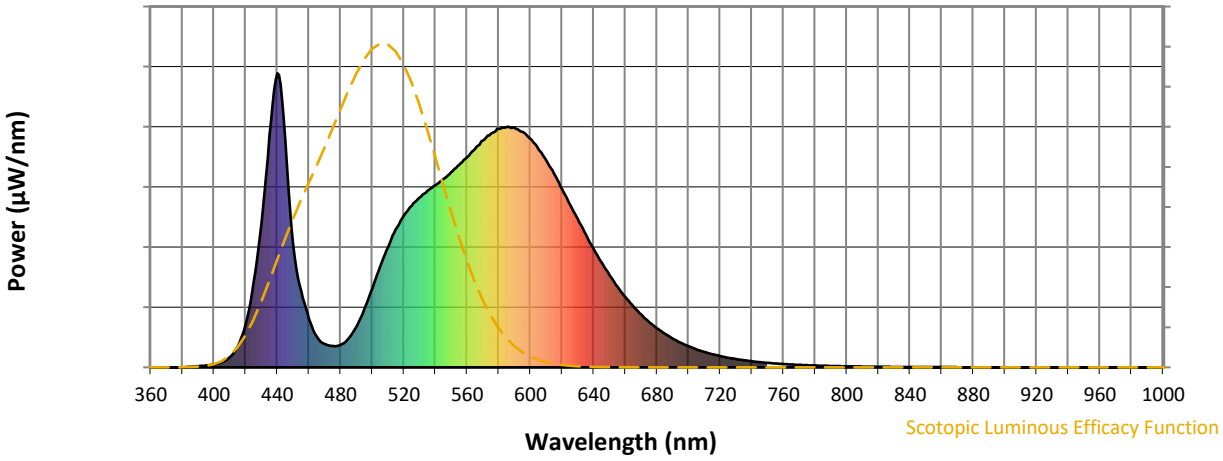



## Photopic Lumens: NR

| 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 | 139 | NR | 620 | 607 | NR | 750 | 15 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 198 | NR | 625 | 554 | NR | 755 | 13 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 267 | NR | 630 | 504 | NR | 760 | 11 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 343 | NR | 635 | 452 | NR | 765 | 10 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 410 | NR | 640 | 403 | NR | 770 | 8 | NR | 900 | 0 | NR |
| 385 | 2 | NR | 515 | 470 | NR | 645 | 357 | NR | 775 | 7 | NR | 905 | 0 | NR |
| 390 | 4 | NR | 520 | 516 | NR | 650 | 314 | NR | 780 | 6 | NR | 910 | 0 | NR |
| 395 | 7 | NR | 525 | 550 | NR | 655 | 275 | NR | 785 | 5 | NR | 915 | 0 | NR |
| 400 | 10 | NR | 530 | 578 | NR | 660 | 240 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 17 | NR | 535 | 601 | NR | 665 | 208 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 35 | NR | 540 | 620 | NR | 670 | 179 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 70 | NR | 545 | 641 | NR | 675 | 155 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 147 | NR | 550 | 664 | NR | 680 | 133 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 285 | NR | 555 | 689 | NR | 685 | 114 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 487 | NR | 560 | 715 | NR | 690 | 98 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 787 | NR | 565 | 743 | NR | 695 | 84 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 1000 | NR | 570 | 771 | NR | 700 | 72 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 783 | NR | 575 | 794 | NR | 705 | 61 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 417 | NR | 580 | 811 | NR | 710 | 52 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 261 | NR | 585 | 817 | NR | 715 | 45 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 167 | NR | 590 | 815 | NR | 720 | 39 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 104 | NR | 595 | 801 | NR | 725 | 33 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 79 | NR | 600 | 777 | NR | 730 | 28 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 73 | NR | 605 | 744 | NR | 735 | 24 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 76 | NR | 610 | 704 | NR | 740 | 21 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 98 | NR | 615 | 657 | NR | 745 | 18 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2407-184-1

## Scotopic Flux vs. Wavelength

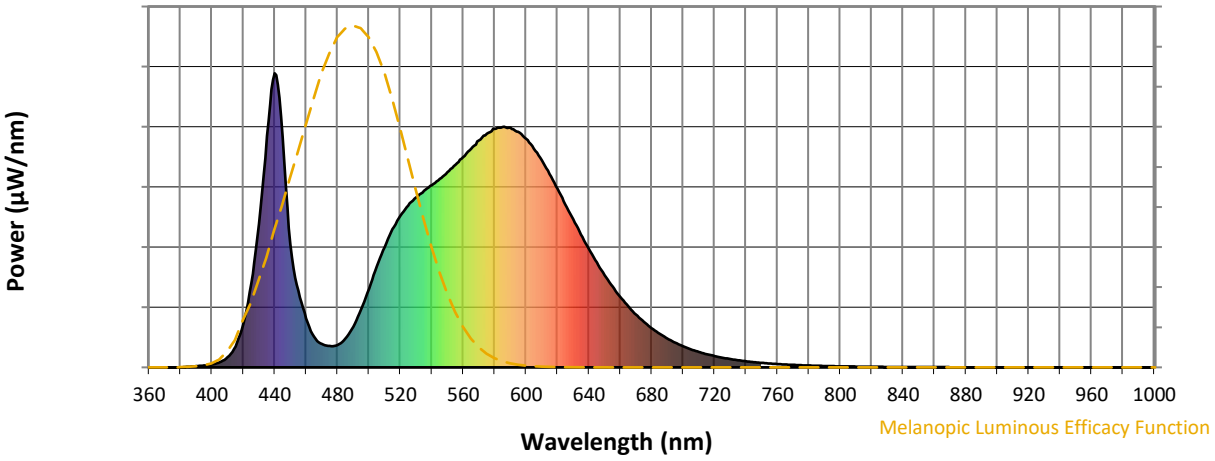



**Scotopic Lumens: NR** **S/P: 1.47**

| 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 | 139 | NR | 620 | 607 | NR | 750 | 15 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 198 | NR | 625 | 554 | NR | 755 | 13 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 267 | NR | 630 | 504 | NR | 760 | 11 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 343 | NR | 635 | 452 | NR | 765 | 10 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 410 | NR | 640 | 403 | NR | 770 | 8 | NR | 900 | 0 | NR |
| 385 | 2 | NR | 515 | 470 | NR | 645 | 357 | NR | 775 | 7 | NR | 905 | 0 | NR |
| 390 | 4 | NR | 520 | 516 | NR | 650 | 314 | NR | 780 | 6 | NR | 910 | 0 | NR |
| 395 | 7 | NR | 525 | 550 | NR | 655 | 275 | NR | 785 | 5 | NR | 915 | 0 | NR |
| 400 | 10 | NR | 530 | 578 | NR | 660 | 240 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 17 | NR | 535 | 601 | NR | 665 | 208 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 35 | NR | 540 | 620 | NR | 670 | 179 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 70 | NR | 545 | 641 | NR | 675 | 155 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 147 | NR | 550 | 664 | NR | 680 | 133 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 285 | NR | 555 | 689 | NR | 685 | 114 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 487 | NR | 560 | 715 | NR | 690 | 98 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 787 | NR | 565 | 743 | NR | 695 | 84 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 1000 | NR | 570 | 771 | NR | 700 | 72 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 783 | NR | 575 | 794 | NR | 705 | 61 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 417 | NR | 580 | 811 | NR | 710 | 52 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 261 | NR | 585 | 817 | NR | 715 | 45 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 167 | NR | 590 | 815 | NR | 720 | 39 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 104 | NR | 595 | 801 | NR | 725 | 33 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 79 | NR | 600 | 777 | NR | 730 | 28 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 73 | NR | 605 | 744 | NR | 735 | 24 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 76 | NR | 610 | 704 | NR | 740 | 21 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 98 | NR | 615 | 657 | NR | 745 | 18 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2407-184-1

## Melanopic Flux vs. Wavelength




**Melanopic Lumens: NR** **M/P: 2.78**

| 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 | 139 | NR | 620 | 607 | NR | 750 | 15 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 198 | NR | 625 | 554 | NR | 755 | 13 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 267 | NR | 630 | 504 | NR | 760 | 11 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 343 | NR | 635 | 452 | NR | 765 | 10 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 410 | NR | 640 | 403 | NR | 770 | 8 | NR | 900 | 0 | NR |
| 385 | 2 | NR | 515 | 470 | NR | 645 | 357 | NR | 775 | 7 | NR | 905 | 0 | NR |
| 390 | 4 | NR | 520 | 516 | NR | 650 | 314 | NR | 780 | 6 | NR | 910 | 0 | NR |
| 395 | 7 | NR | 525 | 550 | NR | 655 | 275 | NR | 785 | 5 | NR | 915 | 0 | NR |
| 400 | 10 | NR | 530 | 578 | NR | 660 | 240 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 17 | NR | 535 | 601 | NR | 665 | 208 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 35 | NR | 540 | 620 | NR | 670 | 179 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 70 | NR | 545 | 641 | NR | 675 | 155 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 147 | NR | 550 | 664 | NR | 680 | 133 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 285 | NR | 555 | 689 | NR | 685 | 114 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 487 | NR | 560 | 715 | NR | 690 | 98 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 787 | NR | 565 | 743 | NR | 695 | 84 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 1000 | NR | 570 | 771 | NR | 700 | 72 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 783 | NR | 575 | 794 | NR | 705 | 61 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 417 | NR | 580 | 811 | NR | 710 | 52 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 261 | NR | 585 | 817 | NR | 715 | 45 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 167 | NR | 590 | 815 | NR | 720 | 39 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 104 | NR | 595 | 801 | NR | 725 | 33 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 79 | NR | 600 | 777 | NR | 730 | 28 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 73 | NR | 605 | 744 | NR | 735 | 24 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 76 | NR | 610 | 704 | NR | 740 | 21 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 98 | NR | 615 | 657 | NR | 745 | 18 | NR | 875 | 1 | NR | | | |

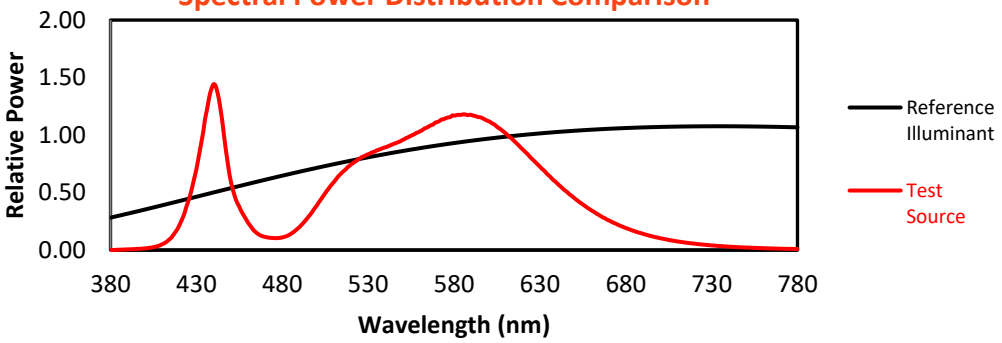
REPORT NUMBER: SP1-2407-184-1

# TM-30-18

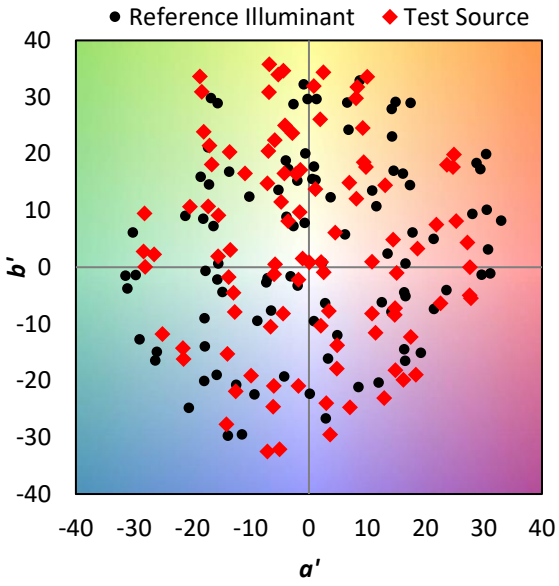
## Summary

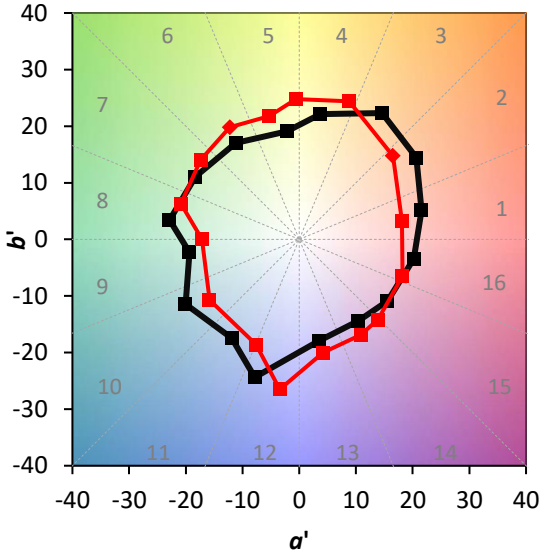
$R_f$ = 71.8
$R_g$ = 96.5
CIE $R_a$ = 70.7
$R_9$ = -36.7

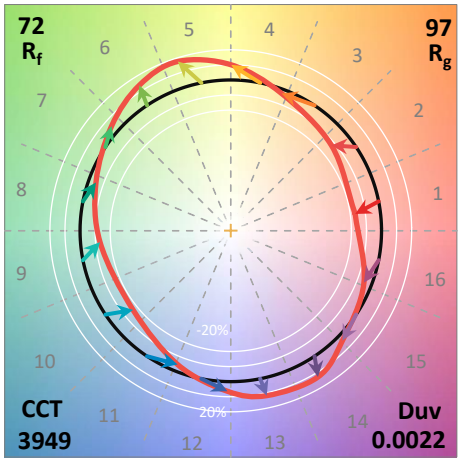
## Spectral Power Distribution Comparison

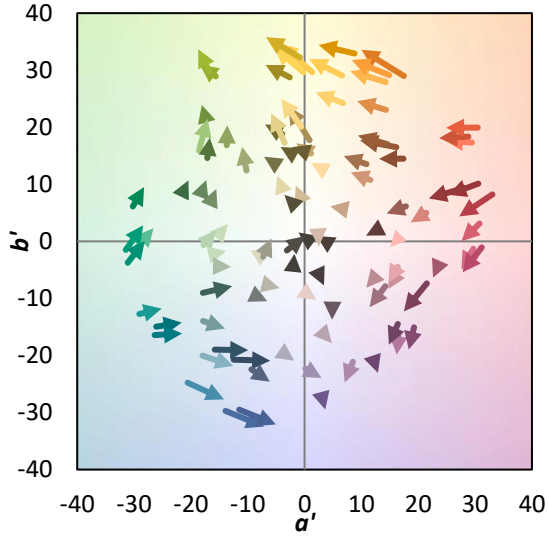



## Color Vector Graphics



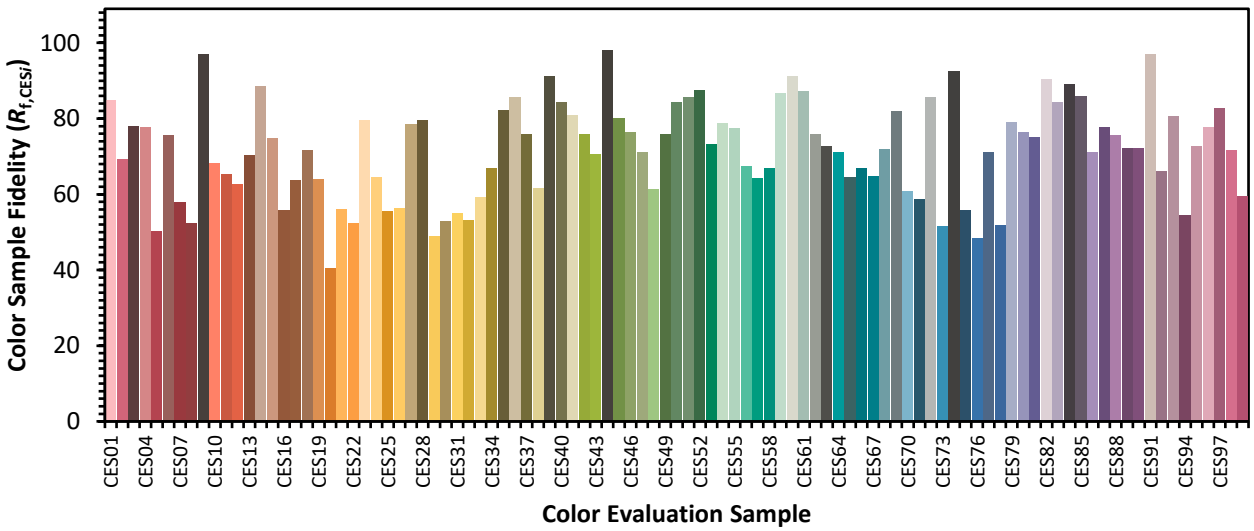



REPORT NUMBER: SP1-2407-184-1

# TM-30-18

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

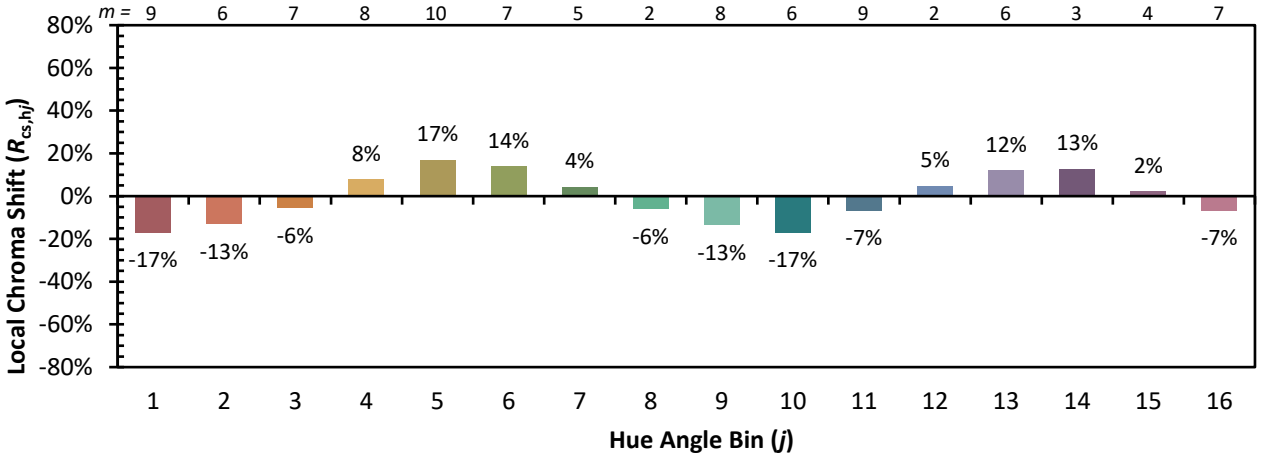
| | | | |
|---|---|---|---|
| CES01 = 85 | CES26 = 56 | CES51 = 86 | CES76 = 48 |
| CES02 = 61 | CES27 = 79 | CES52 = 88 | CES77 = 71 |
| CES03 = 30 | CES28 = 80 | CES53 = 73 | CES78 = 52 |
| CES04 = 70 | CES29 = 49 | CES54 = 79 | CES79 = 79 |
| CES05 = 47 | CES30 = 53 | CES55 = 77 | CES80 = 77 |
| CES06 = 50 | CES31 = 55 | CES56 = 67 | CES81 = 75 |
| CES07 = 40 | CES32 = 53 | CES57 = 64 | CES82 = 90 |
| CES08 = 39 | CES33 = 59 | CES58 = 67 | CES83 = 84 |
| CES09 = 29 | CES34 = 67 | CES59 = 87 | CES84 = 89 |
| CES10 = 74 | CES35 = 82 | CES60 = 91 | CES85 = 86 |
| CES11 = 57 | CES36 = 86 | CES61 = 87 | CES86 = 71 |
| CES12 = 63 | CES37 = 76 | CES62 = 76 | CES87 = 78 |
| CES13 = 42 | CES38 = 62 | CES63 = 73 | CES88 = 76 |
| CES14 = 74 | CES39 = 91 | CES64 = 71 | CES89 = 72 |
| CES15 = 71 | CES40 = 84 | CES65 = 64 | CES90 = 72 |
| CES16 = 46 | CES41 = 81 | CES66 = 67 | CES91 = 97 |
| CES17 = 49 | CES42 = 76 | CES67 = 65 | CES92 = 66 |
| CES18 = 56 | CES43 = 71 | CES68 = 72 | CES93 = 81 |
| CES19 = 72 | CES44 = 98 | CES69 = 82 | CES94 = 55 |
| CES20 = 65 | CES45 = 80 | CES70 = 61 | CES95 = 73 |
| CES21 = 86 | CES46 = 76 | CES71 = 59 | CES96 = 78 |
| CES22 = 78 | CES47 = 71 | CES72 = 86 | CES97 = 83 |
| CES23 = 92 | CES48 = 61 | CES73 = 52 | CES98 = 72 |
| CES24 = 91 | CES49 = 76 | CES74 = 93 | CES99 = 60 |
| CES25 = 72 | CES50 = 84 | CES75 = 56 | |

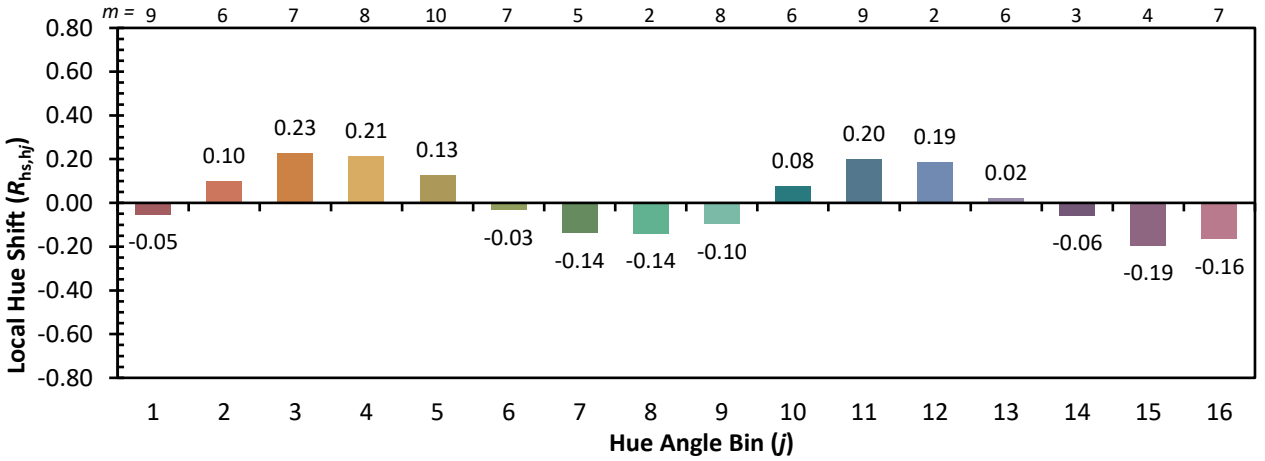


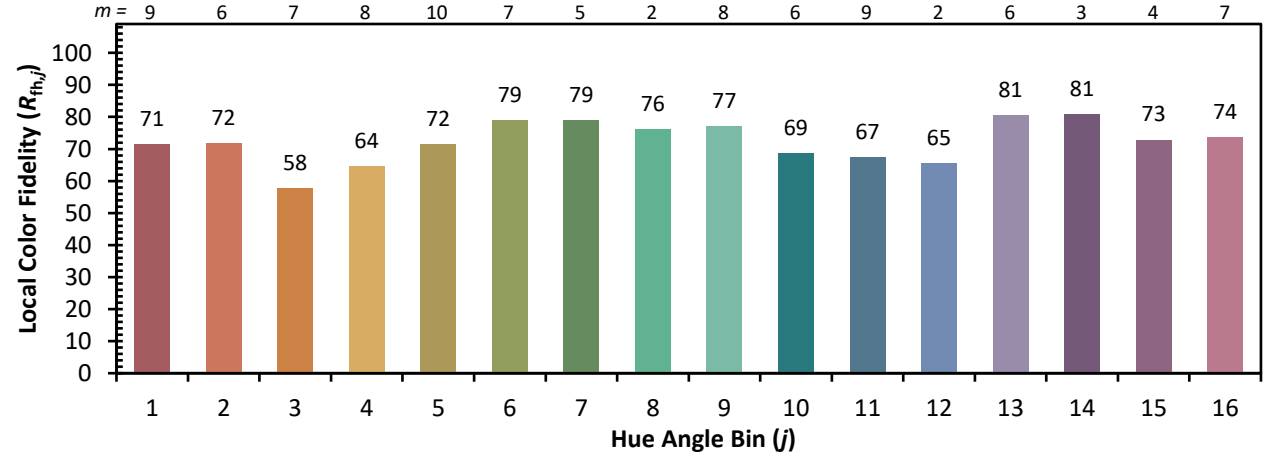
REPORT NUMBER: SP1-2407-184-1

**TM-30-18**

## Color Rendition by Hue-Angle Bin



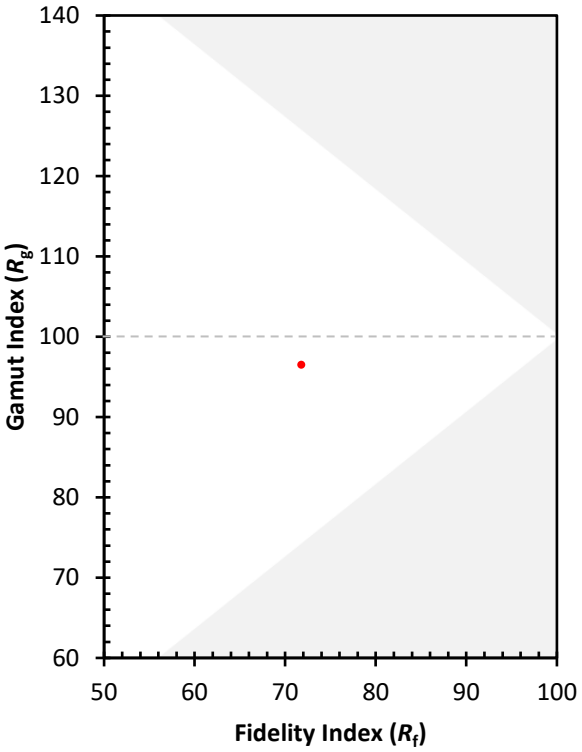



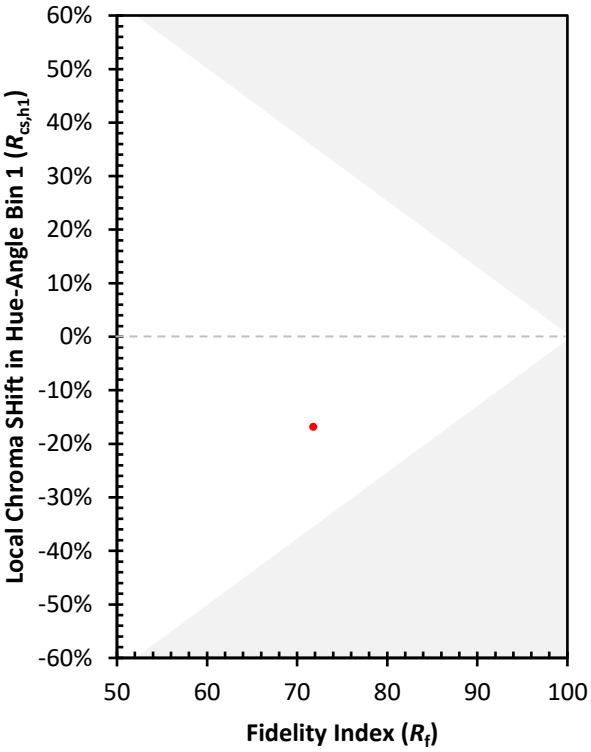



REPORT NUMBER: SP1-2407-184-1

# TM-30-18

## Measure Comparisons




(END OF REPORT)