

Signify Classified - Internal
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: P979158

Luminaire Tested: **WPLLED38S-150W-3000K**

Issue Date: 03/31/2025



Test Information

Test Method: LM-79-08
Report Number: P979158
Test Lab: Cooper Lighting Solutions
Issue Date: 03/31/2025
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: LUMARK
Catalog Number: WPLLED38S-150W-3000K
Description: LUMARK WALL PACK LED LARGE 80CRI CCT AND LUMEN SELECTIVE FIXTURE
OPERATING @150W-3000K
Light Source: 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

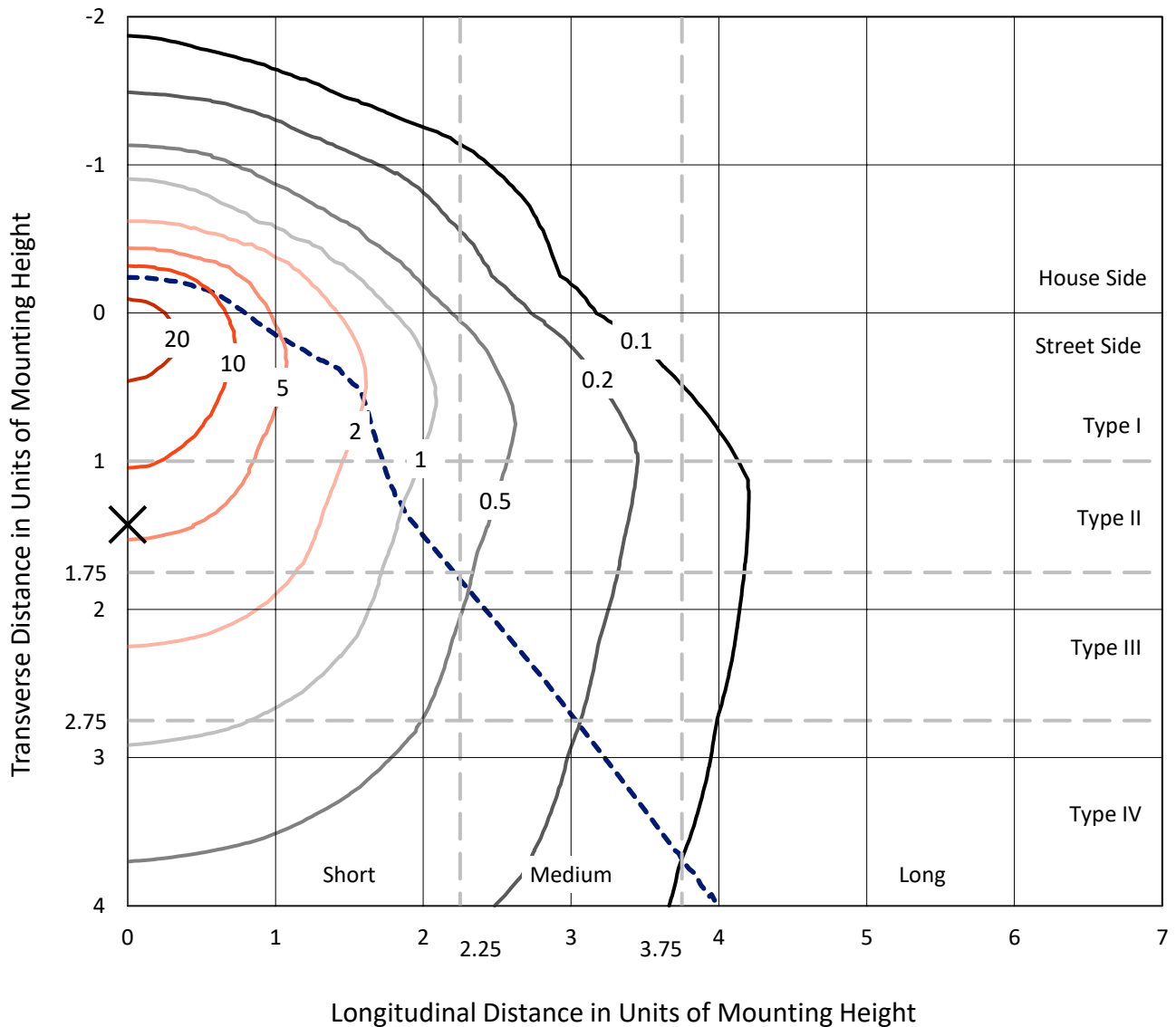
Lumens per Lamp: N/A
Luminaire Lumens: 19969.8 lumens
Efficiency: N/A
Efficacy: 132.8 lumens/watt
Luminous Opening: Rectangular w/ Sides (W: 1.25' x L: 0.33' x H: 0.58')
IES Classification: Type IV - Short
BUG Rating: B3 - U5 - G5

Input Watts (W): 150.4
Input Voltage (V): 120
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: 28.75 FT

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Iso-Footcandle Lines of Horizontal Illumination

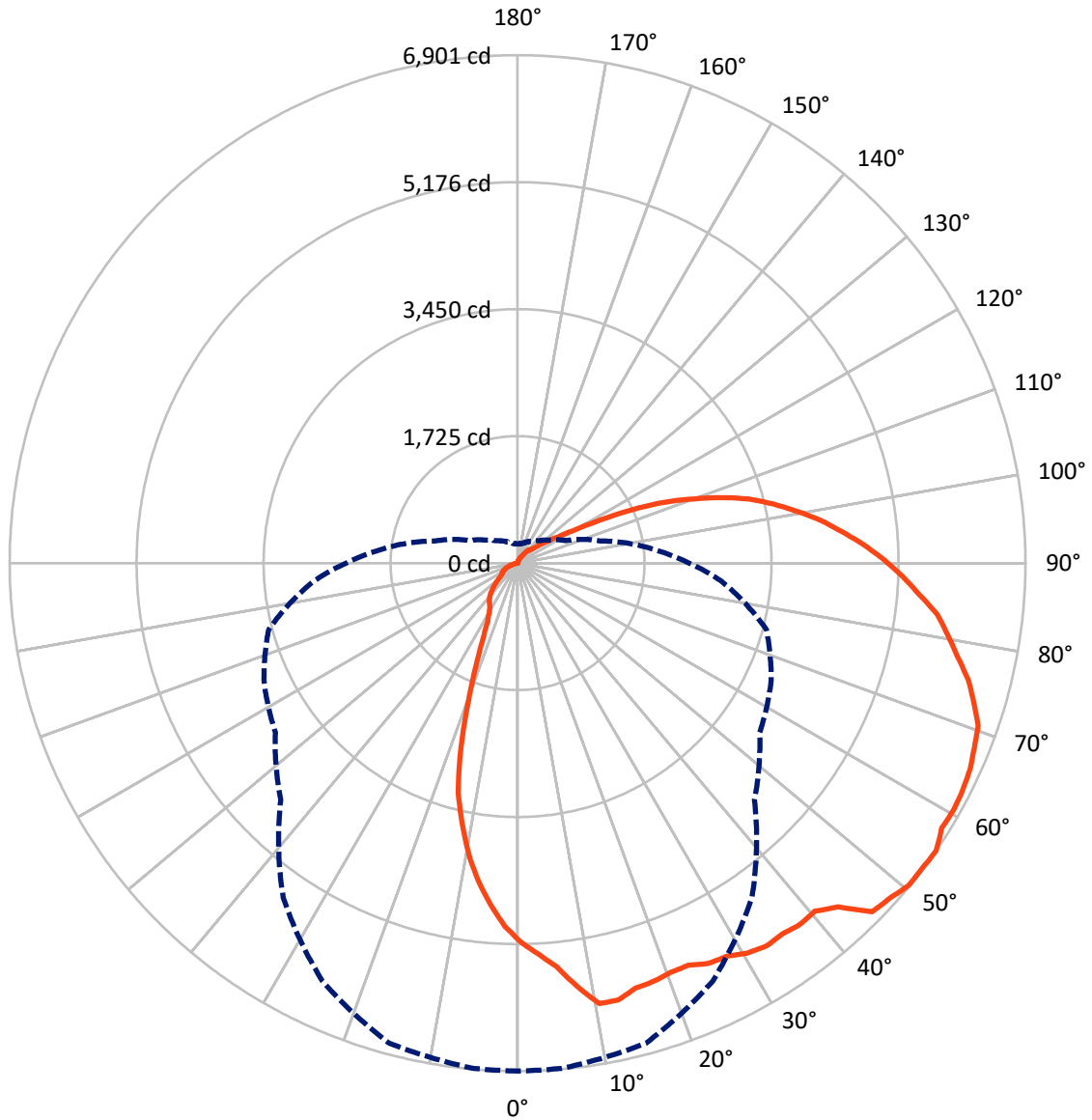
× Max cd
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 25 fc
 Type IV - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 0-Deg Lateral - - - Horizontal Cone Through 55-Deg Vertical

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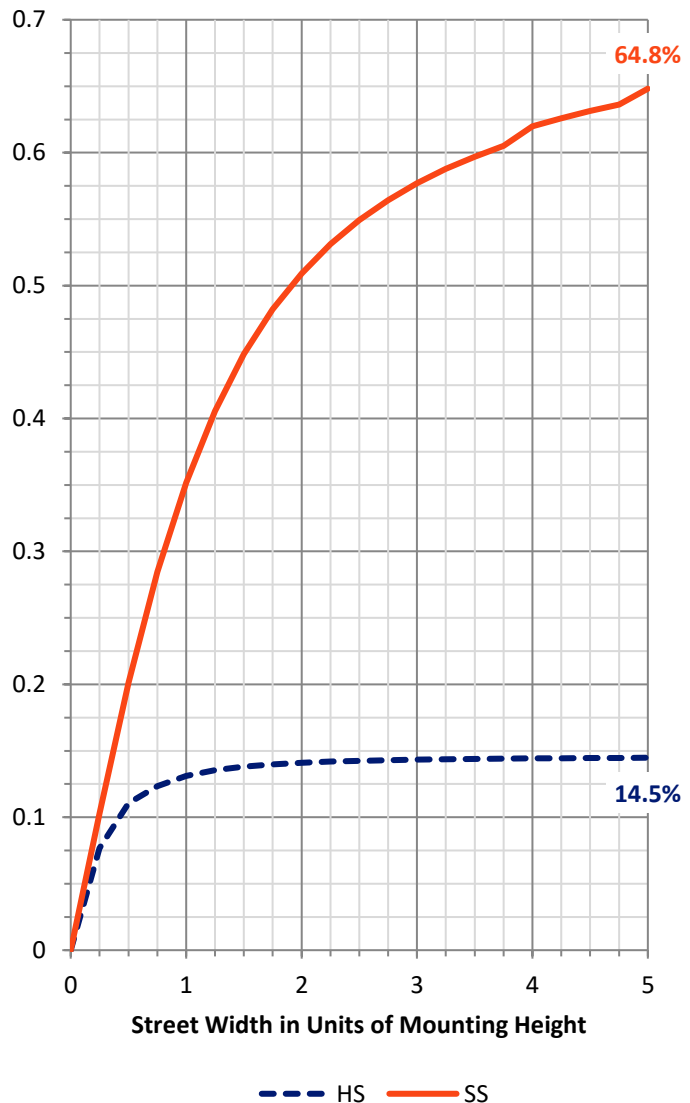
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 2933.6 | 112.3 | 3045.9 |
| | % Fixture | 14.7 | 0.6 | 15.3 |
| Street Side | Lumens | 14194.0 | 2729.9 | 16923.9 |
| | % Fixture | 71.1 | 13.7 | 84.7 |
| Total | Lumens | 17127.6 | 2842.2 | 19969.8 |
| | % Fixture | 85.8 | 14.2 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 485.8 | 2.4 |
| 10°-20° | 1352.6 | 6.8 |
| 20°-30° | 1859.1 | 9.3 |
| 30°-40° | 2154.8 | 10.8 |
| 40°-50° | 2354.4 | 11.8 |
| 50°-60° | 2492.7 | 12.5 |
| 60°-70° | 2462.3 | 12.3 |
| 70°-80° | 2198.0 | 11.0 |
| 80°-90° | 1767.8 | 8.9 |
| 90°-100° | 1312.8 | 6.6 |
| 100°-110° | 840.8 | 4.2 |
| 110°-120° | 385.8 | 1.9 |
| 120°-130° | 156.1 | 0.8 |
| 130°-140° | 81.8 | 0.4 |
| 140°-150° | 41.3 | 0.2 |
| 150°-160° | 16.2 | 0.1 |
| 160°-170° | 5.7 | 0.0 |
| 170°-180° | 1.6 | 0.0 |
| 0°-90° | 17127.6 | 85.8 |
| 0°-180° | 19969.8 | 100.0 |

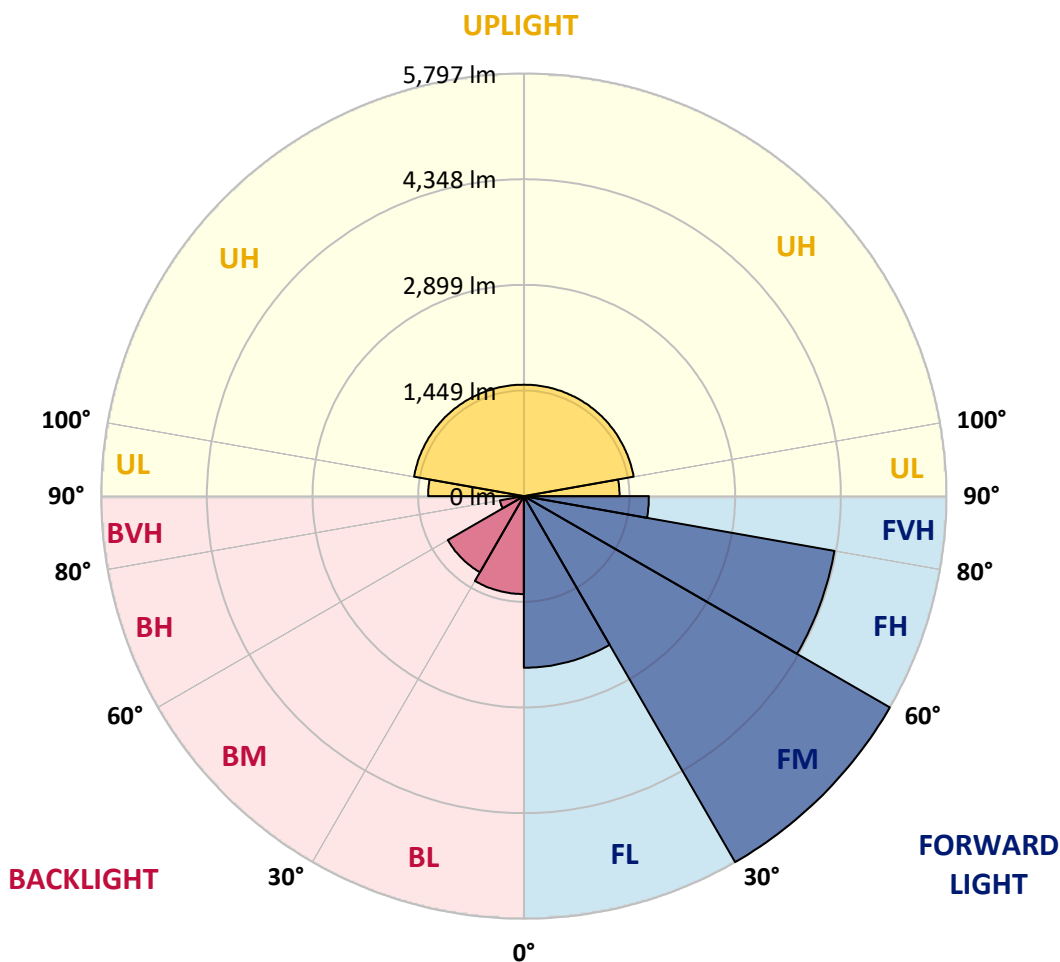


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 CATALOG NUMBER: WPLLED38S-150W-3000K

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|----|---------|
| | | | B | U | G |
| FL (0°-30°) | 2354.2 | 11.8 | | | |
| FM (30°-60°) | 5797.2 | 29.0 | | | |
| FH (60°-80°) | 4327.2 | 21.7 | | | G2/5000 |
| FVH (80°-90°) | 1715.4 | 8.6 | | | G5 |
| BL (0°-30°) | 1343.3 | 6.7 | B3/2500 | | |
| BM (30°-60°) | 1204.7 | 6.0 | B2/2500 | | |
| BH (60°-80°) | 333.1 | 1.7 | B1/500 | | G1/500 |
| BVH (80°-90°) | 52.4 | 0.3 | | | G1/100 |
| UL (90°-100°) | 1312.8 | 6.6 | | U5 | |
| UH (100°-180°) | 1529.4 | 7.7 | | U5 | |

BUG Rating: B3-U5-G5
 Type IV Short





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CATALOG NUMBER: WPLLED38S-150W-3000K

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 85° | 90° |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 5148.6 | 5148.6 | 5148.6 | 5148.6 | 5148.6 | 5148.6 | 5148.6 | 5148.6 | 5148.6 | 5148.6 | 5148.6 |
| 2.5° | 5315.2 | 5315.2 | 5311.7 | 5296.4 | 5285.7 | 5292.8 | 5266.0 | 5208.6 | 5181.8 | 5156.7 | 5133.4 |
| 5° | 5503.4 | 5497.1 | 5487.2 | 5452.3 | 5382.4 | 5306.3 | 5284.8 | 5223.0 | 5187.1 | 5136.1 | 5096.6 |
| 7.5° | 5805.3 | 5845.6 | 5779.3 | 5655.7 | 5536.5 | 5517.7 | 5458.6 | 5383.3 | 5281.2 | 5164.7 | 5111.0 |
| 10° | 6085.7 | 6121.5 | 6061.5 | 5984.5 | 5931.6 | 5791.0 | 5555.3 | 5433.5 | 5290.2 | 5125.3 | 5056.3 |
| 12.5° | 6088.4 | 6118.8 | 6015.8 | 6011.3 | 6081.2 | 5960.3 | 5732.7 | 5432.6 | 5239.1 | 5049.2 | 4977.5 |
| 15° | 5993.4 | 6031.9 | 5950.4 | 6043.6 | 6009.5 | 5963.0 | 5860.8 | 5531.1 | 5255.2 | 5028.6 | 4922.8 |
| 17.5° | 5975.5 | 6026.6 | 5946.8 | 5997.0 | 5975.5 | 5902.9 | 5922.6 | 5607.3 | 5219.4 | 4956.9 | 4835.0 |
| 20° | 5937.0 | 5987.1 | 5939.7 | 5896.7 | 5864.4 | 5835.7 | 5816.9 | 5684.3 | 5186.2 | 4880.7 | 4732.0 |
| 22.5° | 5934.3 | 5959.4 | 5926.2 | 5853.7 | 5782.9 | 5745.3 | 5687.9 | 5661.9 | 5154.9 | 4771.4 | 4620.0 |
| 25° | 6025.7 | 6052.5 | 5962.1 | 5868.0 | 5696.0 | 5635.1 | 5532.0 | 5515.9 | 5105.6 | 4666.6 | 4487.4 |
| 27.5° | 6050.8 | 6077.6 | 5973.7 | 5868.0 | 5699.6 | 5504.3 | 5421.8 | 5341.2 | 5046.5 | 4515.2 | 4344.1 |
| 30° | 6148.4 | 6184.2 | 6069.6 | 5876.1 | 5683.4 | 5401.2 | 5254.3 | 5150.4 | 4924.6 | 4371.9 | 4145.2 |
| 32.5° | 6204.0 | 6249.6 | 6175.3 | 5945.0 | 5653.0 | 5350.2 | 5076.9 | 4978.4 | 4837.7 | 4196.3 | 3976.8 |
| 35° | 6190.5 | 6255.9 | 6187.8 | 5993.4 | 5659.3 | 5291.9 | 4909.4 | 4803.7 | 4671.1 | 4011.7 | 3767.2 |
| 37.5° | 6230.8 | 6293.5 | 6187.8 | 5985.4 | 5633.3 | 5208.6 | 4835.9 | 4606.6 | 4485.7 | 3809.3 | 3529.8 |
| 40° | 6218.3 | 6272.9 | 6115.3 | 5946.8 | 5600.1 | 5118.1 | 4711.4 | 4442.7 | 4275.1 | 3583.5 | 3294.1 |
| 42.5° | 6384.9 | 6419.9 | 6201.3 | 5936.1 | 5514.1 | 4997.2 | 4603.0 | 4311.0 | 4081.6 | 3392.7 | 3093.5 |
| 45° | 6755.8 | 6798.8 | 6463.8 | 6023.0 | 5483.7 | 4895.1 | 4462.4 | 4173.0 | 3927.5 | 3234.1 | 2908.0 |
| 47.5° | 6805.1 | 6839.1 | 6635.8 | 6143.9 | 5514.1 | 4804.6 | 4385.3 | 4079.8 | 3786.9 | 3109.6 | 2753.0 |
| 50° | 6883.9 | 6892.9 | 6688.6 | 6230.8 | 5530.3 | 4731.1 | 4285.0 | 4014.4 | 3692.8 | 2987.8 | 2615.1 |
| 52.5° | 6884.8 | 6893.8 | 6723.6 | 6266.7 | 5532.0 | 4645.1 | 4188.2 | 3919.5 | 3607.7 | 2883.8 | 2487.0 |
| 55° | 6900.9 | 6889.3 | 6749.5 | 6268.5 | 5550.0 | 4551.1 | 4015.3 | 3801.2 | 3501.1 | 2776.3 | 2332.0 |
| 57.5° | 6795.2 | 6775.5 | 6666.2 | 6254.1 | 5558.9 | 4474.0 | 3873.8 | 3674.9 | 3421.4 | 2679.6 | 2187.7 |
| 60° | 6806.9 | 6756.7 | 6650.1 | 6218.3 | 5509.6 | 4357.5 | 3752.8 | 3523.5 | 3326.4 | 2561.3 | 2028.3 |
| 62.5° | 6788.1 | 6728.0 | 6614.3 | 6191.4 | 5455.9 | 4278.7 | 3628.3 | 3364.0 | 3202.8 | 2438.6 | 1840.1 |
| 65° | 6754.0 | 6682.3 | 6582.9 | 6170.8 | 5397.7 | 4200.8 | 3480.5 | 3221.6 | 3092.6 | 2232.5 | 1607.2 |
| 67.5° | 6693.1 | 6611.6 | 6513.9 | 6104.5 | 5333.2 | 4113.9 | 3332.7 | 3054.0 | 2922.4 | 1993.3 | 1359.0 |
| 70° | 6637.6 | 6548.9 | 6443.1 | 6013.1 | 5259.7 | 3998.3 | 3203.7 | 2888.3 | 2741.4 | 1726.4 | 1086.7 |
| 72.5° | 6483.5 | 6387.6 | 6283.7 | 5857.2 | 5149.5 | 3889.9 | 3058.5 | 2704.7 | 2502.2 | 1399.4 | 818.8 |
| 75° | 6323.1 | 6234.4 | 6121.5 | 5727.3 | 5025.0 | 3758.2 | 2930.4 | 2513.8 | 2245.1 | 1093.0 | 602.0 |
| 77.5° | 6110.8 | 6006.0 | 5889.5 | 5515.0 | 4834.2 | 3599.6 | 2783.5 | 2324.8 | 1944.1 | 808.1 | 459.6 |
| 80° | 5926.2 | 5813.3 | 5710.3 | 5340.3 | 4668.4 | 3434.8 | 2651.8 | 2132.2 | 1643.9 | 571.6 | 376.3 |
| 82.5° | 5746.2 | 5610.9 | 5490.8 | 5130.7 | 4461.5 | 3258.3 | 2487.9 | 1962.0 | 1368.9 | 416.6 | 310.0 |
| 85° | 5475.6 | 5339.4 | 5216.7 | 4878.1 | 4212.4 | 3053.1 | 2341.8 | 1788.2 | 1105.5 | 325.2 | 258.0 |
| 87.5° | 5237.3 | 5137.9 | 4994.5 | 4625.4 | 3959.8 | 2853.4 | 2153.7 | 1599.1 | 875.3 | 266.1 | 216.8 |
| 90° | 4981.1 | 4872.7 | 4734.7 | 4358.4 | 3697.3 | 2647.3 | 1971.8 | 1412.8 | 683.6 | 230.2 | 189.9 |
| 92.5° | 4714.1 | 4612.9 | 4470.4 | 4086.1 | 3437.5 | 2455.6 | 1801.6 | 1212.1 | 546.5 | 203.4 | 175.6 |
| 95° | 4428.3 | 4364.7 | 4197.2 | 3833.5 | 3171.4 | 2241.5 | 1621.5 | 1029.4 | 447.0 | 188.1 | 165.7 |
| 97.5° | 4163.1 | 4085.2 | 3933.8 | 3569.2 | 2882.9 | 2048.0 | 1445.1 | 853.8 | 371.8 | 177.4 | 158.6 |
| 100° | 3857.6 | 3786.9 | 3633.7 | 3266.4 | 2580.1 | 1830.3 | 1239.9 | 697.9 | 314.5 | 170.2 | 154.1 |
| 102.5° | 3566.5 | 3515.4 | 3352.4 | 2951.9 | 2273.7 | 1583.9 | 1032.1 | 567.1 | 271.5 | 166.6 | 148.7 |
| 105° | 3261.0 | 3214.4 | 3052.3 | 2628.5 | 1972.7 | 1346.5 | 834.1 | 459.6 | 242.8 | 164.8 | 145.1 |
| 107.5° | 2877.6 | 2852.5 | 2673.3 | 2228.0 | 1642.1 | 1111.8 | 679.1 | 377.2 | 222.2 | 163.0 | 141.5 |
| 110° | 2471.7 | 2465.5 | 2251.3 | 1850.0 | 1345.6 | 891.4 | 544.7 | 318.9 | 206.1 | 158.6 | 137.1 |



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 CATALOG NUMBER: WPLLED38S-150W-3000K

CANDELA DISTRIBUTION (continued):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 85° | 90° |
|--------|--------|--------|--------|--------|--------|-------|-------|-------|-------|-------|-------|
| 112.5° | 2079.3 | 2006.8 | 1842.8 | 1429.8 | 1053.6 | 702.4 | 439.9 | 276.8 | 192.6 | 152.3 | 130.8 |
| 115° | 1626.9 | 1582.1 | 1405.6 | 1109.1 | 816.1 | 557.2 | 369.1 | 241.9 | 183.7 | 144.2 | 123.6 |
| 117.5° | 1179.0 | 1140.5 | 1021.3 | 850.2 | 647.7 | 465.9 | 310.9 | 219.5 | 174.7 | 133.5 | 114.7 |
| 120° | 860.0 | 849.3 | 758.8 | 645.9 | 537.5 | 398.7 | 269.7 | 198.9 | 163.9 | 121.8 | 103.9 |
| 122.5° | 647.7 | 640.6 | 602.9 | 533.9 | 461.4 | 343.1 | 240.1 | 182.8 | 151.4 | 110.2 | 94.1 |
| 125° | 533.0 | 519.6 | 495.4 | 451.5 | 387.9 | 300.1 | 220.4 | 171.1 | 137.1 | 98.5 | 84.2 |
| 127.5° | 431.8 | 432.7 | 413.0 | 377.2 | 338.6 | 267.0 | 206.1 | 163.0 | 123.6 | 86.0 | 75.3 |
| 130° | 354.8 | 350.3 | 344.0 | 324.3 | 299.2 | 245.5 | 196.2 | 154.1 | 110.2 | 76.1 | 66.3 |
| 132.5° | 297.4 | 295.6 | 291.2 | 278.6 | 262.5 | 227.6 | 187.2 | 143.3 | 97.7 | 68.1 | 60.0 |
| 135° | 259.8 | 260.7 | 254.4 | 242.8 | 238.3 | 211.4 | 177.4 | 129.9 | 84.2 | 60.9 | 54.6 |
| 137.5° | 241.9 | 241.0 | 226.7 | 215.9 | 215.0 | 198.0 | 163.0 | 115.6 | 74.4 | 55.5 | 51.1 |
| 140° | 223.1 | 221.3 | 206.9 | 195.3 | 190.8 | 180.1 | 146.9 | 100.3 | 64.5 | 51.1 | 47.5 |
| 142.5° | 190.8 | 187.2 | 179.2 | 172.0 | 164.8 | 159.5 | 126.3 | 86.0 | 55.5 | 46.6 | 43.9 |
| 145° | 145.1 | 146.9 | 147.8 | 141.5 | 136.2 | 131.7 | 105.7 | 71.7 | 49.3 | 43.0 | 41.2 |
| 147.5° | 117.4 | 115.6 | 116.5 | 114.7 | 111.1 | 103.9 | 86.9 | 59.1 | 43.9 | 40.3 | 38.5 |
| 150° | 95.9 | 94.1 | 95.0 | 92.3 | 89.6 | 83.3 | 71.7 | 49.3 | 39.4 | 37.6 | 36.7 |
| 152.5° | 77.9 | 77.9 | 78.8 | 76.1 | 73.5 | 67.2 | 55.5 | 41.2 | 35.8 | 34.9 | 34.9 |
| 155° | 62.7 | 63.6 | 62.7 | 61.8 | 58.2 | 52.0 | 43.0 | 34.9 | 33.1 | 33.1 | 33.1 |
| 157.5° | 50.2 | 50.2 | 50.2 | 49.3 | 44.8 | 41.2 | 34.9 | 30.5 | 31.4 | 32.3 | 32.3 |
| 160° | 37.6 | 38.5 | 38.5 | 37.6 | 34.9 | 30.5 | 27.8 | 27.8 | 29.6 | 30.5 | 30.5 |
| 162.5° | 26.9 | 26.0 | 27.8 | 27.8 | 24.2 | 22.4 | 24.2 | 26.0 | 28.7 | 29.6 | 29.6 |
| 165° | 16.1 | 16.1 | 17.9 | 17.9 | 17.9 | 17.9 | 21.5 | 25.1 | 27.8 | 28.7 | 29.6 |
| 167.5° | 9.0 | 9.0 | 9.9 | 12.5 | 13.4 | 16.1 | 21.5 | 25.1 | 27.8 | 28.7 | 29.6 |
| 170° | 4.5 | 4.5 | 6.3 | 9.9 | 12.5 | 16.1 | 22.4 | 26.0 | 27.8 | 28.7 | 29.6 |
| 172.5° | 2.7 | 3.6 | 6.3 | 9.9 | 12.5 | 17.0 | 22.4 | 26.0 | 27.8 | 29.6 | 29.6 |
| 175° | 3.6 | 3.6 | 6.3 | 9.9 | 13.4 | 17.0 | 22.4 | 26.0 | 28.7 | 29.6 | 30.5 |
| 177.5° | 3.6 | 4.5 | 7.2 | 10.8 | 13.4 | 17.0 | 23.3 | 26.0 | 28.7 | 29.6 | 30.5 |
| 180° | 17.0 | 17.0 | 17.0 | 17.0 | 17.0 | 17.0 | 17.0 | 17.0 | 17.0 | 17.0 | 17.0 |



REPORT NUMBER: P979158

CATALOG NUMBER: WPLLED38S-150W-3000K

CANDELA DISTRIBUTION (continued):

| | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 5148.6 | 5148.6 | 5148.6 | 5148.6 | 5148.6 | 5148.6 | 5148.6 | 5148.6 | 5148.6 | 5148.6 |
| 2.5° | 5105.6 | 5085.9 | 5059.9 | 5019.6 | 4990.9 | 4977.5 | 4968.5 | 4938.1 | 4940.8 | 4935.4 |
| 5° | 5061.7 | 4996.3 | 4937.2 | 4861.9 | 4783.1 | 4743.7 | 4703.4 | 4680.1 | 4645.1 | 4653.2 |
| 7.5° | 5069.8 | 4975.7 | 4858.3 | 4709.6 | 4599.4 | 4515.2 | 4442.7 | 4429.2 | 4379.9 | 4354.0 |
| 10° | 5003.5 | 4865.5 | 4693.5 | 4538.5 | 4384.4 | 4252.7 | 4139.8 | 4119.2 | 4035.9 | 4014.4 |
| 12.5° | 4900.4 | 4711.4 | 4509.0 | 4327.1 | 4153.3 | 3934.7 | 3800.3 | 3739.4 | 3653.4 | 3613.1 |
| 15° | 4836.8 | 4594.1 | 4350.4 | 4108.5 | 3853.2 | 3632.8 | 3428.5 | 3304.9 | 3204.6 | 3219.8 |
| 17.5° | 4723.1 | 4444.4 | 4151.5 | 3853.2 | 3524.4 | 3263.7 | 2967.1 | 2739.6 | 2635.7 | 2633.0 |
| 20° | 4607.5 | 4280.5 | 3947.2 | 3572.8 | 3168.7 | 2779.0 | 2430.5 | 2140.3 | 2044.4 | 2002.3 |
| 22.5° | 4461.5 | 4095.1 | 3702.7 | 3270.8 | 2764.7 | 2232.5 | 1878.7 | 1642.1 | 1522.1 | 1505.1 |
| 25° | 4302.0 | 3884.5 | 3430.3 | 2940.3 | 2282.7 | 1780.1 | 1420.9 | 1218.4 | 1135.1 | 1124.3 |
| 27.5° | 4113.9 | 3683.0 | 3172.3 | 2532.6 | 1853.6 | 1363.5 | 1093.9 | 953.2 | 904.8 | 895.9 |
| 30° | 3907.8 | 3443.8 | 2875.8 | 2120.5 | 1476.4 | 1064.3 | 887.8 | 811.7 | 786.6 | 783.0 |
| 32.5° | 3723.3 | 3222.5 | 2594.5 | 1795.3 | 1188.8 | 890.5 | 792.0 | 740.0 | 719.4 | 710.4 |
| 35° | 3492.1 | 2951.0 | 2278.2 | 1492.5 | 976.5 | 794.6 | 727.5 | 688.0 | 674.6 | 669.2 |
| 37.5° | 3238.6 | 2704.7 | 1987.1 | 1249.7 | 853.8 | 731.9 | 681.8 | 652.2 | 642.3 | 639.7 |
| 40° | 2993.1 | 2452.9 | 1713.8 | 1042.8 | 758.8 | 675.5 | 637.9 | 601.1 | 592.2 | 593.1 |
| 42.5° | 2791.6 | 2230.7 | 1454.9 | 871.7 | 682.7 | 622.6 | 581.4 | 559.9 | 545.6 | 542.0 |
| 45° | 2598.9 | 2018.4 | 1219.3 | 754.3 | 625.3 | 560.8 | 530.4 | 496.3 | 480.2 | 477.5 |
| 47.5° | 2434.1 | 1794.4 | 1015.0 | 688.9 | 575.2 | 520.5 | 468.5 | 428.2 | 415.7 | 413.0 |
| 50° | 2250.4 | 1557.0 | 883.3 | 637.0 | 521.4 | 462.3 | 413.9 | 370.9 | 350.3 | 350.3 |
| 52.5° | 2091.0 | 1352.8 | 786.6 | 593.1 | 477.5 | 416.6 | 362.8 | 320.7 | 293.8 | 291.2 |
| 55° | 1919.9 | 1160.2 | 722.1 | 544.7 | 432.7 | 366.4 | 318.9 | 278.6 | 261.6 | 262.5 |
| 57.5° | 1742.5 | 1013.2 | 676.4 | 501.7 | 382.5 | 322.5 | 278.6 | 249.1 | 249.1 | 254.4 |
| 60° | 1543.6 | 891.4 | 639.7 | 456.0 | 335.1 | 280.4 | 245.5 | 222.2 | 226.7 | 230.2 |
| 62.5° | 1334.0 | 796.4 | 602.0 | 407.6 | 294.7 | 240.1 | 209.6 | 198.9 | 207.8 | 209.6 |
| 65° | 1116.3 | 726.6 | 559.0 | 361.0 | 255.3 | 209.6 | 179.2 | 181.0 | 187.2 | 189.0 |
| 67.5° | 906.6 | 661.2 | 501.7 | 316.2 | 219.5 | 172.9 | 161.3 | 158.6 | 167.5 | 167.5 |
| 70° | 720.3 | 606.5 | 445.3 | 272.3 | 184.6 | 144.2 | 137.1 | 134.4 | 138.9 | 137.1 |
| 72.5° | 600.2 | 544.7 | 385.2 | 231.1 | 151.4 | 118.3 | 112.0 | 111.1 | 108.4 | 106.6 |
| 75° | 512.4 | 479.3 | 333.3 | 192.6 | 122.7 | 95.9 | 84.2 | 81.5 | 76.1 | 76.1 |
| 77.5° | 442.6 | 407.6 | 277.7 | 158.6 | 99.4 | 73.5 | 57.3 | 48.4 | 45.7 | 43.9 |
| 80° | 379.9 | 342.2 | 230.2 | 127.2 | 75.3 | 48.4 | 26.9 | 15.2 | 9.9 | 11.6 |
| 82.5° | 321.6 | 284.0 | 191.7 | 103.0 | 54.6 | 24.2 | 5.4 | 0.9 | 0.0 | 0.0 |
| 85° | 270.6 | 235.6 | 162.2 | 85.1 | 44.8 | 21.5 | 6.3 | 1.8 | 0.0 | 0.0 |
| 87.5° | 227.6 | 198.9 | 139.8 | 74.4 | 40.3 | 20.6 | 7.2 | 2.7 | 0.9 | 0.0 |
| 90° | 198.0 | 173.8 | 126.3 | 67.2 | 37.6 | 19.7 | 7.2 | 3.6 | 1.8 | 1.8 |
| 92.5° | 179.2 | 156.8 | 114.7 | 61.8 | 34.9 | 19.7 | 8.1 | 4.5 | 2.7 | 2.7 |
| 95° | 162.2 | 144.2 | 104.8 | 58.2 | 33.1 | 19.7 | 9.0 | 5.4 | 4.5 | 4.5 |
| 97.5° | 149.6 | 132.6 | 97.7 | 54.6 | 32.3 | 19.7 | 9.9 | 6.3 | 5.4 | 4.5 |
| 100° | 139.8 | 123.6 | 88.7 | 51.1 | 30.5 | 18.8 | 9.9 | 7.2 | 5.4 | 5.4 |
| 102.5° | 133.5 | 116.5 | 81.5 | 47.5 | 29.6 | 18.8 | 9.9 | 7.2 | 5.4 | 5.4 |
| 105° | 128.1 | 112.0 | 75.3 | 45.7 | 27.8 | 17.9 | 9.9 | 7.2 | 5.4 | 5.4 |
| 107.5° | 123.6 | 107.5 | 69.9 | 43.0 | 26.9 | 17.0 | 9.9 | 7.2 | 5.4 | 5.4 |
| 110° | 119.2 | 99.4 | 64.5 | 40.3 | 25.1 | 16.1 | 9.9 | 6.3 | 5.4 | 4.5 |



REPORT NUMBER: P979158
 CATALOG NUMBER: WPLLED38S-150W-3000K

CANDELA DISTRIBUTION (continued):

| | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|--------|-------|------|------|------|------|------|------|------|------|------|
| 112.5° | 112.9 | 90.5 | 59.1 | 37.6 | 24.2 | 15.2 | 9.0 | 6.3 | 4.5 | 4.5 |
| 115° | 106.6 | 79.7 | 53.8 | 35.8 | 23.3 | 14.3 | 9.0 | 6.3 | 4.5 | 3.6 |
| 117.5° | 98.5 | 70.8 | 49.3 | 33.1 | 22.4 | 13.4 | 9.0 | 5.4 | 3.6 | 3.6 |
| 120° | 88.7 | 62.7 | 45.7 | 32.3 | 21.5 | 12.5 | 8.1 | 5.4 | 3.6 | 3.6 |
| 122.5° | 79.7 | 57.3 | 43.0 | 30.5 | 20.6 | 12.5 | 8.1 | 5.4 | 3.6 | 2.7 |
| 125° | 70.8 | 52.9 | 40.3 | 29.6 | 19.7 | 11.6 | 8.1 | 5.4 | 2.7 | 2.7 |
| 127.5° | 62.7 | 48.4 | 38.5 | 29.6 | 19.7 | 11.6 | 8.1 | 5.4 | 2.7 | 2.7 |
| 130° | 57.3 | 45.7 | 36.7 | 28.7 | 18.8 | 11.6 | 9.0 | 5.4 | 3.6 | 2.7 |
| 132.5° | 52.9 | 43.0 | 35.8 | 28.7 | 18.8 | 12.5 | 9.0 | 5.4 | 3.6 | 3.6 |
| 135° | 49.3 | 41.2 | 34.9 | 27.8 | 17.9 | 12.5 | 9.0 | 5.4 | 3.6 | 3.6 |
| 137.5° | 46.6 | 39.4 | 34.0 | 26.9 | 17.9 | 12.5 | 9.9 | 6.3 | 4.5 | 3.6 |
| 140° | 43.9 | 37.6 | 33.1 | 26.9 | 17.9 | 13.4 | 9.9 | 6.3 | 4.5 | 4.5 |
| 142.5° | 41.2 | 36.7 | 31.4 | 26.0 | 17.9 | 13.4 | 9.9 | 6.3 | 4.5 | 4.5 |
| 145° | 38.5 | 34.9 | 30.5 | 25.1 | 17.9 | 13.4 | 9.9 | 6.3 | 4.5 | 4.5 |
| 147.5° | 36.7 | 34.0 | 29.6 | 24.2 | 17.0 | 13.4 | 9.9 | 6.3 | 4.5 | 3.6 |
| 150° | 34.9 | 32.3 | 28.7 | 23.3 | 17.0 | 13.4 | 9.9 | 6.3 | 4.5 | 3.6 |
| 152.5° | 34.0 | 31.4 | 27.8 | 22.4 | 17.0 | 13.4 | 9.9 | 6.3 | 3.6 | 3.6 |
| 155° | 32.3 | 30.5 | 26.9 | 22.4 | 17.0 | 13.4 | 9.9 | 6.3 | 3.6 | 3.6 |
| 157.5° | 31.4 | 29.6 | 26.0 | 22.4 | 17.0 | 12.5 | 9.9 | 5.4 | 3.6 | 3.6 |
| 160° | 30.5 | 28.7 | 26.0 | 22.4 | 17.0 | 12.5 | 9.9 | 5.4 | 3.6 | 3.6 |
| 162.5° | 29.6 | 28.7 | 26.0 | 22.4 | 17.0 | 12.5 | 9.0 | 5.4 | 3.6 | 3.6 |
| 165° | 28.7 | 27.8 | 26.0 | 22.4 | 16.1 | 12.5 | 9.0 | 5.4 | 2.7 | 2.7 |
| 167.5° | 29.6 | 27.8 | 26.0 | 22.4 | 16.1 | 12.5 | 9.0 | 4.5 | 2.7 | 2.7 |
| 170° | 29.6 | 27.8 | 26.0 | 21.5 | 16.1 | 11.6 | 9.0 | 4.5 | 2.7 | 1.8 |
| 172.5° | 29.6 | 28.7 | 26.0 | 21.5 | 16.1 | 12.5 | 9.0 | 4.5 | 2.7 | 1.8 |
| 175° | 29.6 | 28.7 | 26.0 | 22.4 | 16.1 | 12.5 | 9.0 | 4.5 | 2.7 | 1.8 |
| 177.5° | 29.6 | 28.7 | 26.0 | 22.4 | 16.1 | 11.6 | 9.0 | 4.5 | 2.7 | 1.8 |
| 180° | 17.0 | 17.0 | 17.0 | 17.0 | 17.0 | 17.0 | 17.0 | 17.0 | 17.0 | 17.0 |

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

Lumark

Report Number: SP1-2407-168-1

Test Date: 08/08/2024

Luminaire Tested: LSDL-92S-100W 3000k

Data in this report applies to families of products including LSDL-92S-100W 3000k.

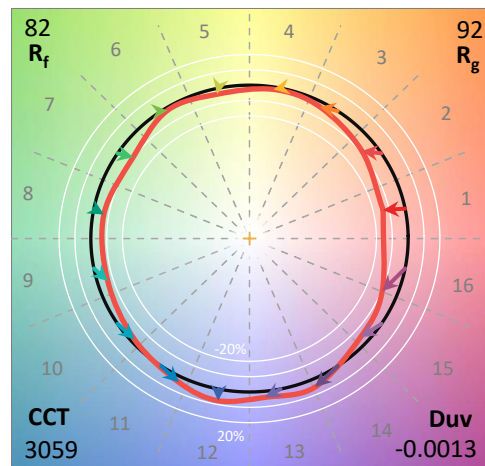
Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-168-1
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 08/12/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: Lumark
 Catalog Number: **LSDL-92S-100W 3000k**
 Description: Lumark Wallpack 100W

Spectral Parameters

CCT (K): 3059
 CIE u': 0.2490
 CIE v': 0.5184
 Duv: -0.0013
 CIE x: 0.4310
 CIE y: 0.3988
 CIE z: 0.1702
 Peak Wavelength (nm): 600
 Dominant Wavelength (nm): 583
 Purity: 49.0643
 Rf: 81.8
 Rg: 91.9

| | | | |
|-----------|------|------|------|
| CRI (Ra): | 79.3 | | |
| R1: | 78.1 | R9: | -8.3 |
| R2: | 92.3 | R10: | 82.8 |
| R3: | 91.2 | R11: | 73.1 |
| R4: | 74.6 | R12: | 70.5 |
| R5: | 78.8 | R13: | 81.8 |
| R6: | 90.5 | R14: | 95.7 |
| R7: | 77.6 | R15: | 69.8 |
| R8: | 50.9 | | |



Test Conditions

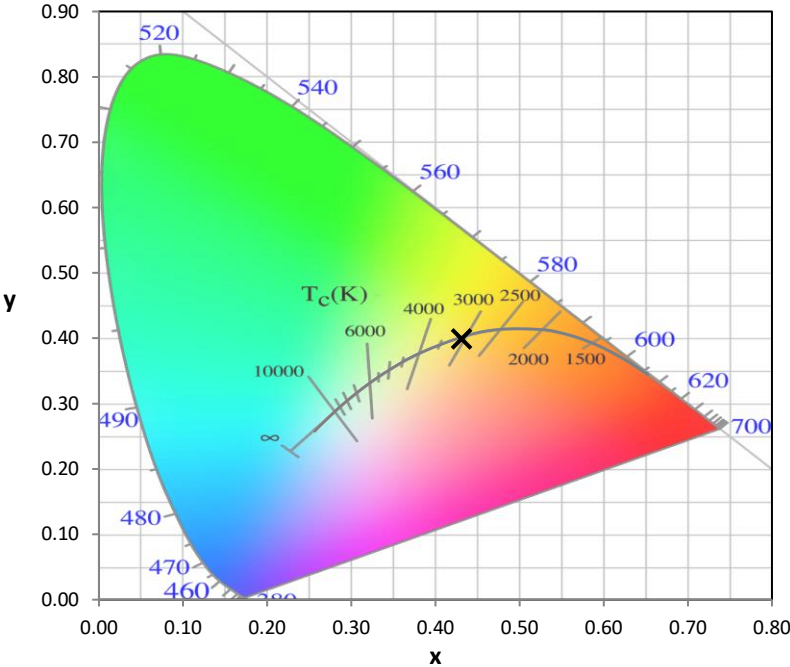
Stabilization Time: 51M
 Operation Time: 1H 51M
 Sphere Temperature (°C): 24.2

REPORT NUMBER: SP1-2407-168-1

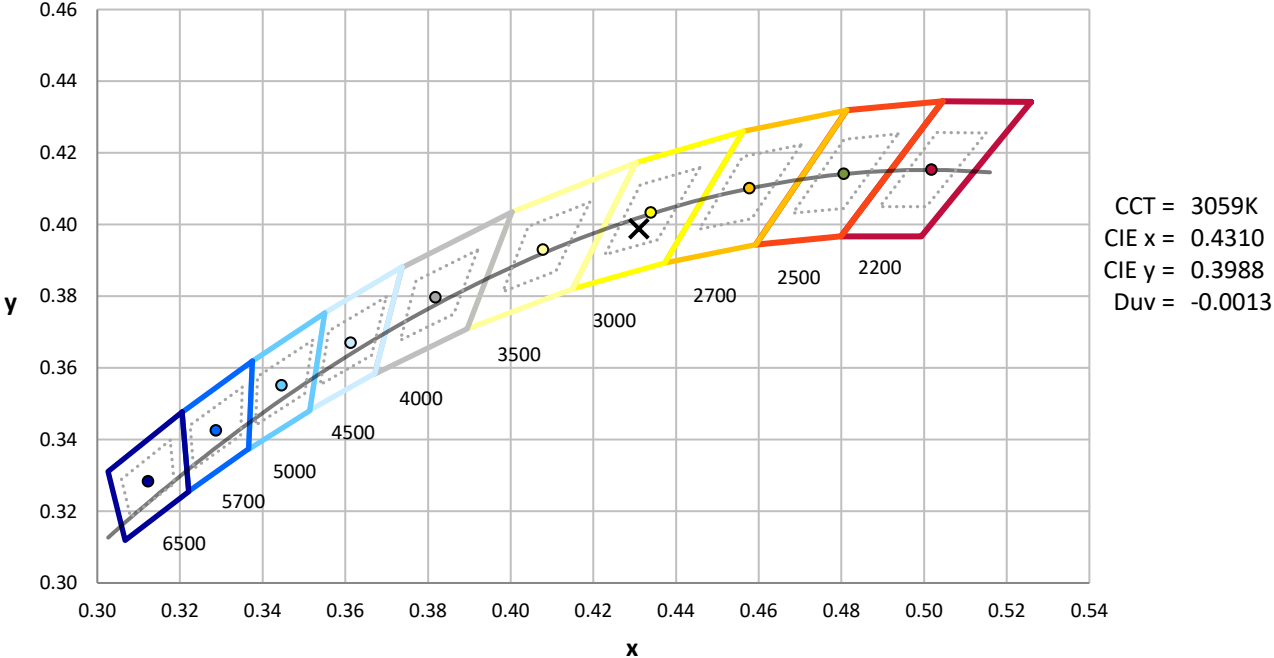
| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 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: SP1-2407-168-1

CIE 1931 Chromaticity Diagram



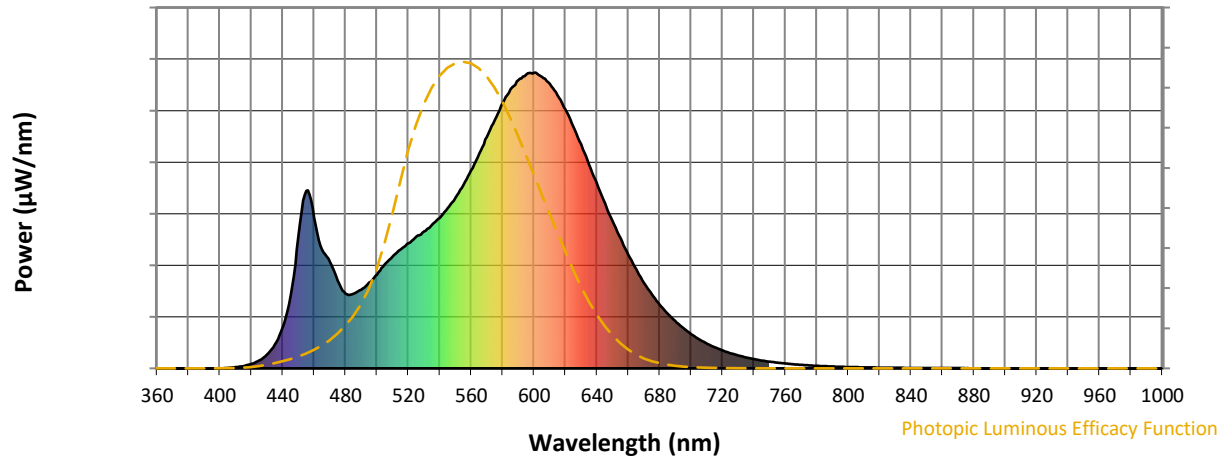
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2407-168-1

Photopic Flux vs. Wavelength

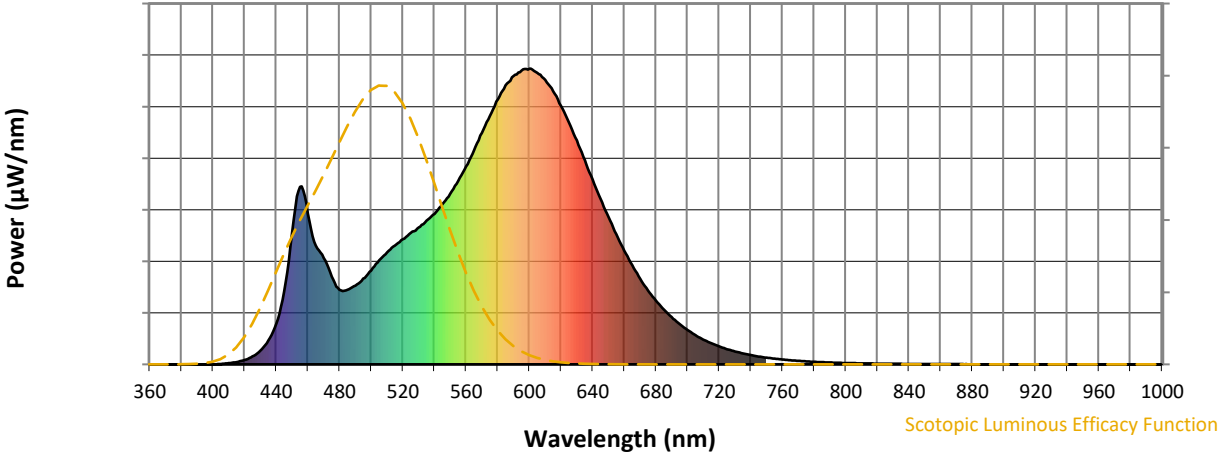


Photopic Lumens: NR

| 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 | 266 | NR | 620 | 875 | NR | 750 | 23 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 290 | NR | 625 | 818 | NR | 755 | 19 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 317 | NR | 630 | 758 | NR | 760 | 16 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 352 | NR | 635 | 690 | NR | 765 | 14 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 379 | NR | 640 | 625 | NR | 770 | 12 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 402 | NR | 645 | 560 | NR | 775 | 10 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 423 | NR | 650 | 498 | NR | 780 | 9 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 445 | NR | 655 | 440 | NR | 785 | 7 | NR | 915 | 0 | NR |
| 400 | 0 | NR | 530 | 463 | NR | 660 | 385 | NR | 790 | 6 | NR | 920 | 0 | NR |
| 405 | 1 | NR | 535 | 486 | NR | 665 | 335 | NR | 795 | 5 | NR | 925 | 0 | NR |
| 410 | 4 | NR | 540 | 509 | NR | 670 | 289 | NR | 800 | 5 | NR | 930 | 0 | NR |
| 415 | 8 | NR | 545 | 542 | NR | 675 | 250 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 15 | NR | 550 | 577 | NR | 680 | 216 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 27 | NR | 555 | 620 | NR | 685 | 185 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 46 | NR | 560 | 670 | NR | 690 | 160 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 81 | NR | 565 | 725 | NR | 695 | 136 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 139 | NR | 570 | 782 | NR | 700 | 116 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 246 | NR | 575 | 840 | NR | 705 | 99 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 446 | NR | 580 | 896 | NR | 710 | 84 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 601 | NR | 585 | 944 | NR | 715 | 71 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 511 | NR | 590 | 975 | NR | 720 | 61 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 402 | NR | 595 | 994 | NR | 725 | 51 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 359 | NR | 600 | 1000 | NR | 730 | 44 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 297 | NR | 605 | 985 | NR | 735 | 37 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 252 | NR | 610 | 962 | NR | 740 | 32 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 252 | NR | 615 | 923 | NR | 745 | 27 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2407-168-1

Scotopic Flux vs. Wavelength

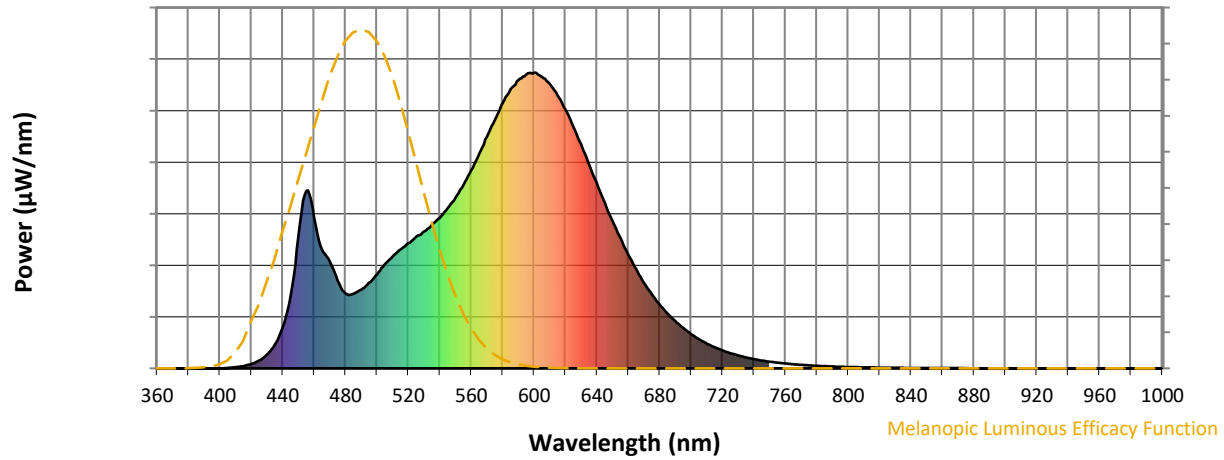


Scotopic Lumens: NR S/P: 1.39

| 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 | 266 | NR | 620 | 875 | NR | 750 | 23 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 290 | NR | 625 | 818 | NR | 755 | 19 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 317 | NR | 630 | 758 | NR | 760 | 16 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 352 | NR | 635 | 690 | NR | 765 | 14 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 379 | NR | 640 | 625 | NR | 770 | 12 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 402 | NR | 645 | 560 | NR | 775 | 10 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 423 | NR | 650 | 498 | NR | 780 | 9 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 445 | NR | 655 | 440 | NR | 785 | 7 | NR | 915 | 0 | NR |
| 400 | 0 | NR | 530 | 463 | NR | 660 | 385 | NR | 790 | 6 | NR | 920 | 0 | NR |
| 405 | 1 | NR | 535 | 486 | NR | 665 | 335 | NR | 795 | 5 | NR | 925 | 0 | NR |
| 410 | 4 | NR | 540 | 509 | NR | 670 | 289 | NR | 800 | 5 | NR | 930 | 0 | NR |
| 415 | 8 | NR | 545 | 542 | NR | 675 | 250 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 15 | NR | 550 | 577 | NR | 680 | 216 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 27 | NR | 555 | 620 | NR | 685 | 185 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 46 | NR | 560 | 670 | NR | 690 | 160 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 81 | NR | 565 | 725 | NR | 695 | 136 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 139 | NR | 570 | 782 | NR | 700 | 116 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 246 | NR | 575 | 840 | NR | 705 | 99 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 446 | NR | 580 | 896 | NR | 710 | 84 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 601 | NR | 585 | 944 | NR | 715 | 71 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 511 | NR | 590 | 975 | NR | 720 | 61 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 402 | NR | 595 | 994 | NR | 725 | 51 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 359 | NR | 600 | 1000 | NR | 730 | 44 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 297 | NR | 605 | 985 | NR | 735 | 37 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 252 | NR | 610 | 962 | NR | 740 | 32 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 252 | NR | 615 | 923 | NR | 745 | 27 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2407-168-1

Melanopic Flux vs. Wavelength



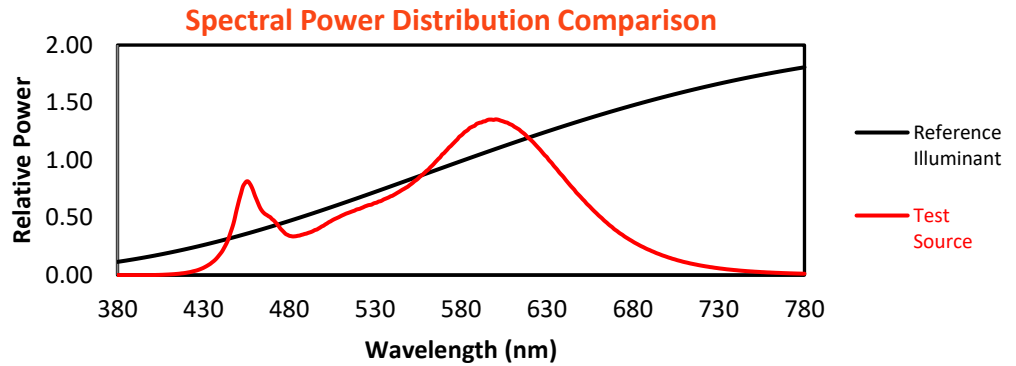
Melanopic Lumens: NR

M/P: 2.77

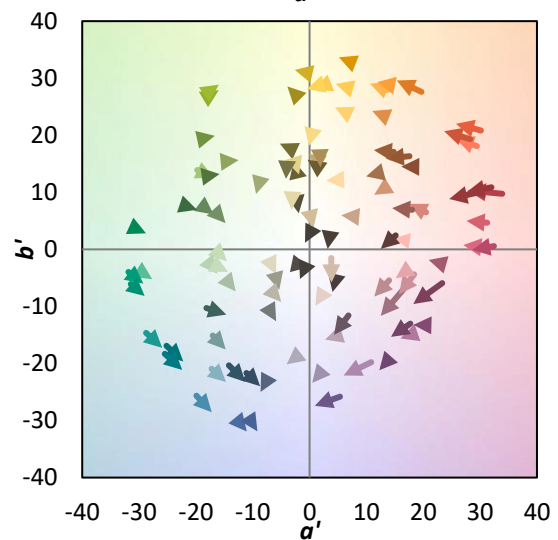
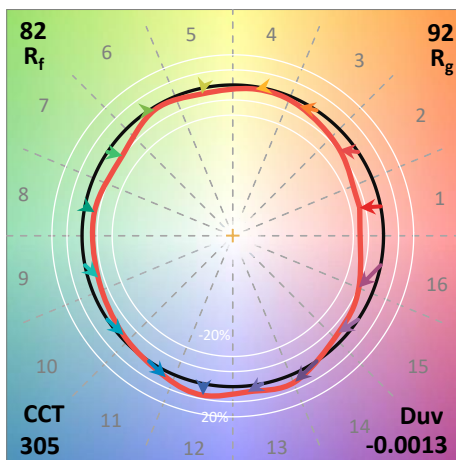
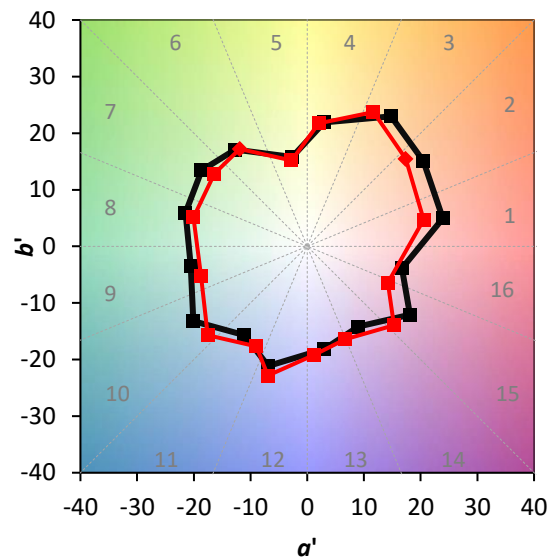
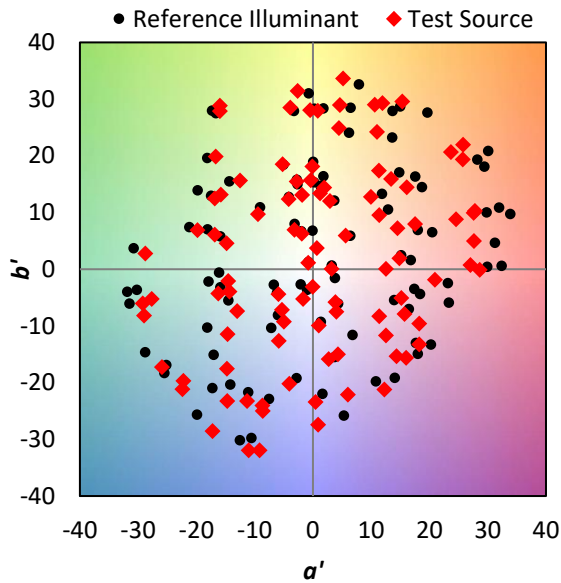
| λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360 | 0 | NR | 490 | 266 | NR | 620 | 875 | NR | 750 | 23 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 290 | NR | 625 | 818 | NR | 755 | 19 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 317 | NR | 630 | 758 | NR | 760 | 16 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 352 | NR | 635 | 690 | NR | 765 | 14 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 379 | NR | 640 | 625 | NR | 770 | 12 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 402 | NR | 645 | 560 | NR | 775 | 10 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 423 | NR | 650 | 498 | NR | 780 | 9 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 445 | NR | 655 | 440 | NR | 785 | 7 | NR | 915 | 0 | NR |
| 400 | 0 | NR | 530 | 463 | NR | 660 | 385 | NR | 790 | 6 | NR | 920 | 0 | NR |
| 405 | 1 | NR | 535 | 486 | NR | 665 | 335 | NR | 795 | 5 | NR | 925 | 0 | NR |
| 410 | 4 | NR | 540 | 509 | NR | 670 | 289 | NR | 800 | 5 | NR | 930 | 0 | NR |
| 415 | 8 | NR | 545 | 542 | NR | 675 | 250 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 15 | NR | 550 | 577 | NR | 680 | 216 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 27 | NR | 555 | 620 | NR | 685 | 185 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 46 | NR | 560 | 670 | NR | 690 | 160 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 81 | NR | 565 | 725 | NR | 695 | 136 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 139 | NR | 570 | 782 | NR | 700 | 116 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 246 | NR | 575 | 840 | NR | 705 | 99 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 446 | NR | 580 | 896 | NR | 710 | 84 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 601 | NR | 585 | 944 | NR | 715 | 71 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 511 | NR | 590 | 975 | NR | 720 | 61 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 402 | NR | 595 | 994 | NR | 725 | 51 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 359 | NR | 600 | 1000 | NR | 730 | 44 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 297 | NR | 605 | 985 | NR | 735 | 37 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 252 | NR | 610 | 962 | NR | 740 | 32 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 252 | NR | 615 | 923 | NR | 745 | 27 | NR | 875 | 1 | NR | | | |

Summary

$R_f = 81.8$
 $R_g = 91.9$
 $CIE R_a = 79.3$
 $R_9 = -8.3$

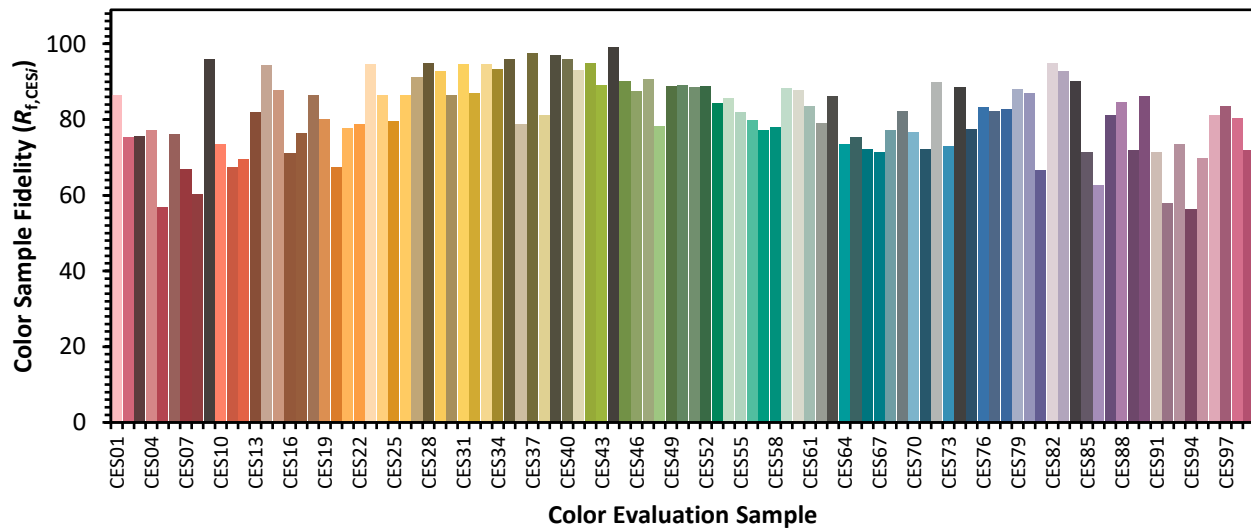


Color Vector Graphics

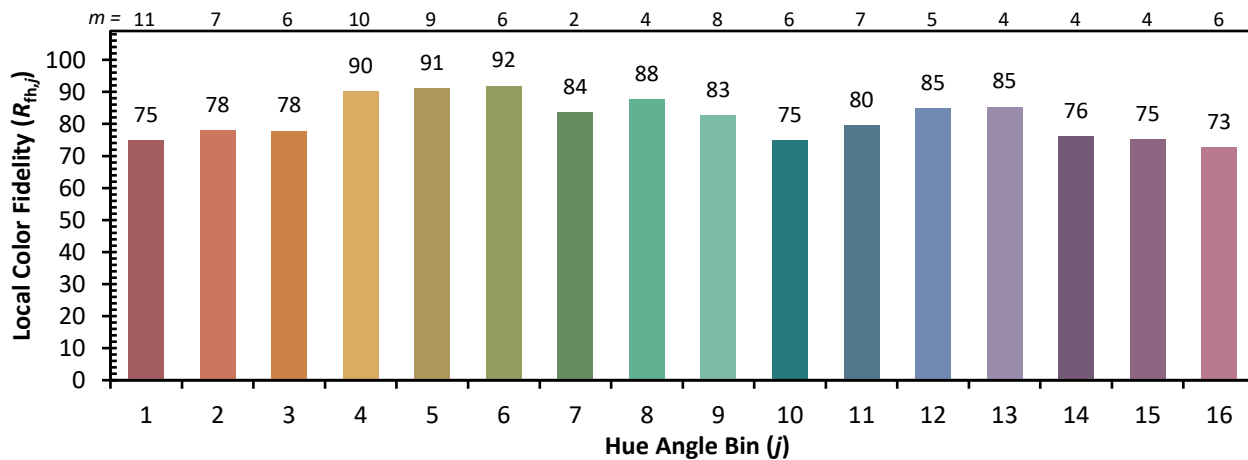
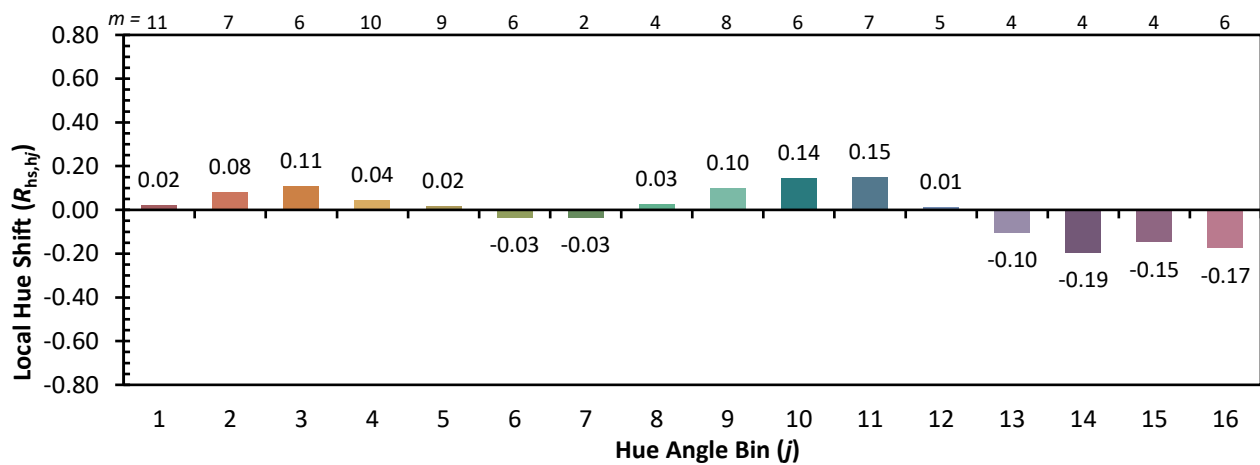
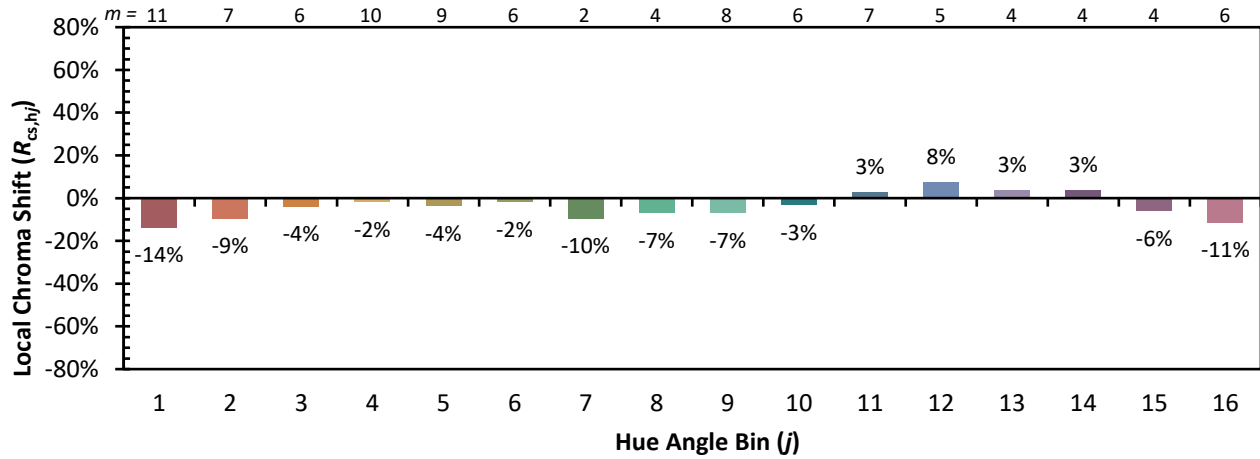


Individual Sample Fidelity Index ($R_{f,i}$)

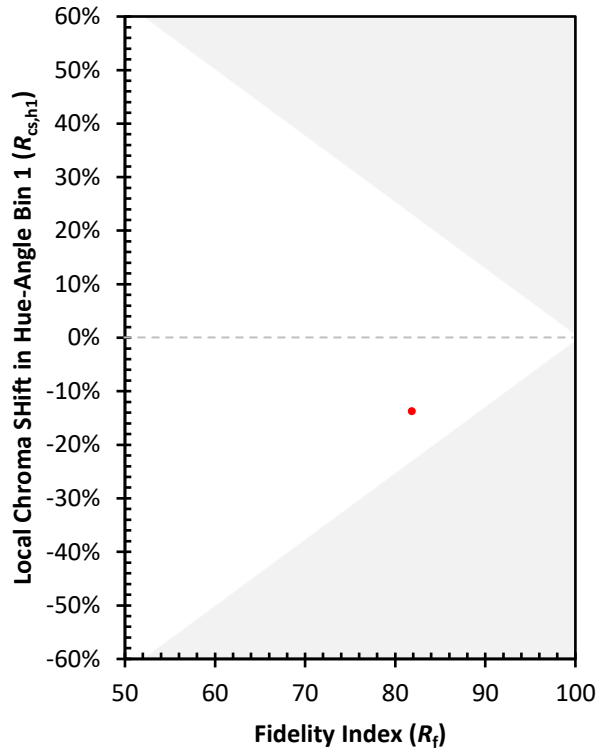
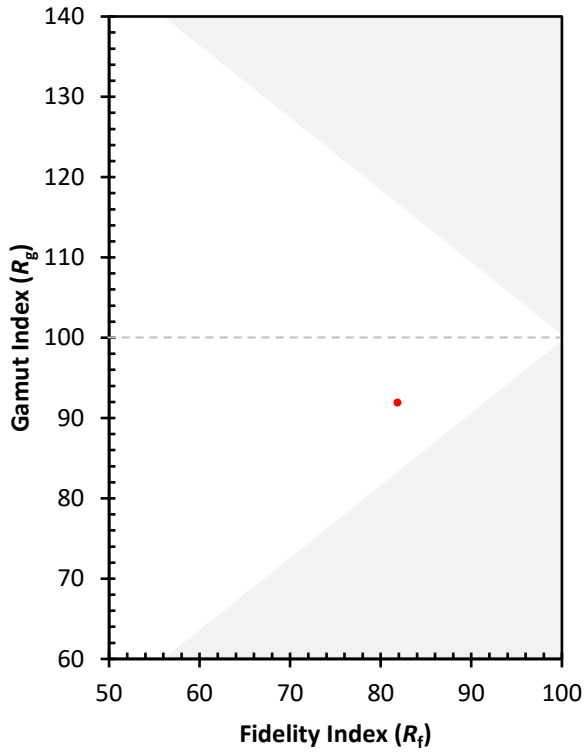
| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 86 | CES51 = 88 | CES76 = 83 |
| CES02 = 63 | CES27 = 91 | CES52 = 89 | CES77 = 82 |
| CES03 = 31 | CES28 = 95 | CES53 = 84 | CES78 = 83 |
| CES04 = 71 | CES29 = 93 | CES54 = 86 | CES79 = 88 |
| CES05 = 49 | CES30 = 86 | CES55 = 82 | CES80 = 87 |
| CES06 = 51 | CES31 = 95 | CES56 = 80 | CES81 = 67 |
| CES07 = 42 | CES32 = 87 | CES57 = 77 | CES82 = 95 |
| CES08 = 40 | CES33 = 95 | CES58 = 78 | CES83 = 93 |
| CES09 = 29 | CES34 = 93 | CES59 = 88 | CES84 = 90 |
| CES10 = 76 | CES35 = 96 | CES60 = 88 | CES85 = 71 |
| CES11 = 59 | CES36 = 79 | CES61 = 84 | CES86 = 63 |
| CES12 = 65 | CES37 = 98 | CES62 = 79 | CES87 = 81 |
| CES13 = 43 | CES38 = 81 | CES63 = 86 | CES88 = 85 |
| CES14 = 74 | CES39 = 97 | CES64 = 73 | CES89 = 72 |
| CES15 = 71 | CES40 = 96 | CES65 = 75 | CES90 = 86 |
| CES16 = 47 | CES41 = 93 | CES66 = 72 | CES91 = 71 |
| CES17 = 50 | CES42 = 95 | CES67 = 71 | CES92 = 58 |
| CES18 = 56 | CES43 = 89 | CES68 = 77 | CES93 = 74 |
| CES19 = 72 | CES44 = 99 | CES69 = 82 | CES94 = 56 |
| CES20 = 66 | CES45 = 90 | CES70 = 77 | CES95 = 70 |
| CES21 = 87 | CES46 = 88 | CES71 = 72 | CES96 = 81 |
| CES22 = 79 | CES47 = 91 | CES72 = 90 | CES97 = 84 |
| CES23 = 92 | CES48 = 78 | CES73 = 73 | CES98 = 80 |
| CES24 = 91 | CES49 = 89 | CES74 = 89 | CES99 = 72 |
| CES25 = 72 | CES50 = 89 | CES75 = 78 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)