

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: McGRAW-EDISON

Report Number: P1436973

Luminaire Tested: **GALN-SB5A-730-U-T2LG-HSS**

Issue Date: 03/27/202

This test was performed under the Supervised Manufacturer's Testing Program. The results of this test have not been influenced by sources from within Cooper Lighting Solutions or from external interests.

Report Generated By 670245763



Test Information

Test Method: LM-79-08
Report Number: P1436973
Test Lab: INNOVATION CENTER(G1)
Issue Date: 03/27/202
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: GALN-SB5A-730-U-T2LG-HSS
Description: GALLEON II AREA AND ROADWAY HIGH DENSITY LUMINAIRE 350mA 5xLight Square PACKAGE 70CRI 3000K FIXTURE w/ TYPE II LOW GLARE WITH HOUSE SIDE SHIELD
Light Source: (130) 3000K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER
Luminaire Equipment:

| <u>Sample No.</u> | <u>Condition</u> | <u>Description</u> |
|-------------------|------------------|--------------------|
| a | good | reflector |
| b | good | lens |
| c | good | housing |
| d | good | cord |

Summary

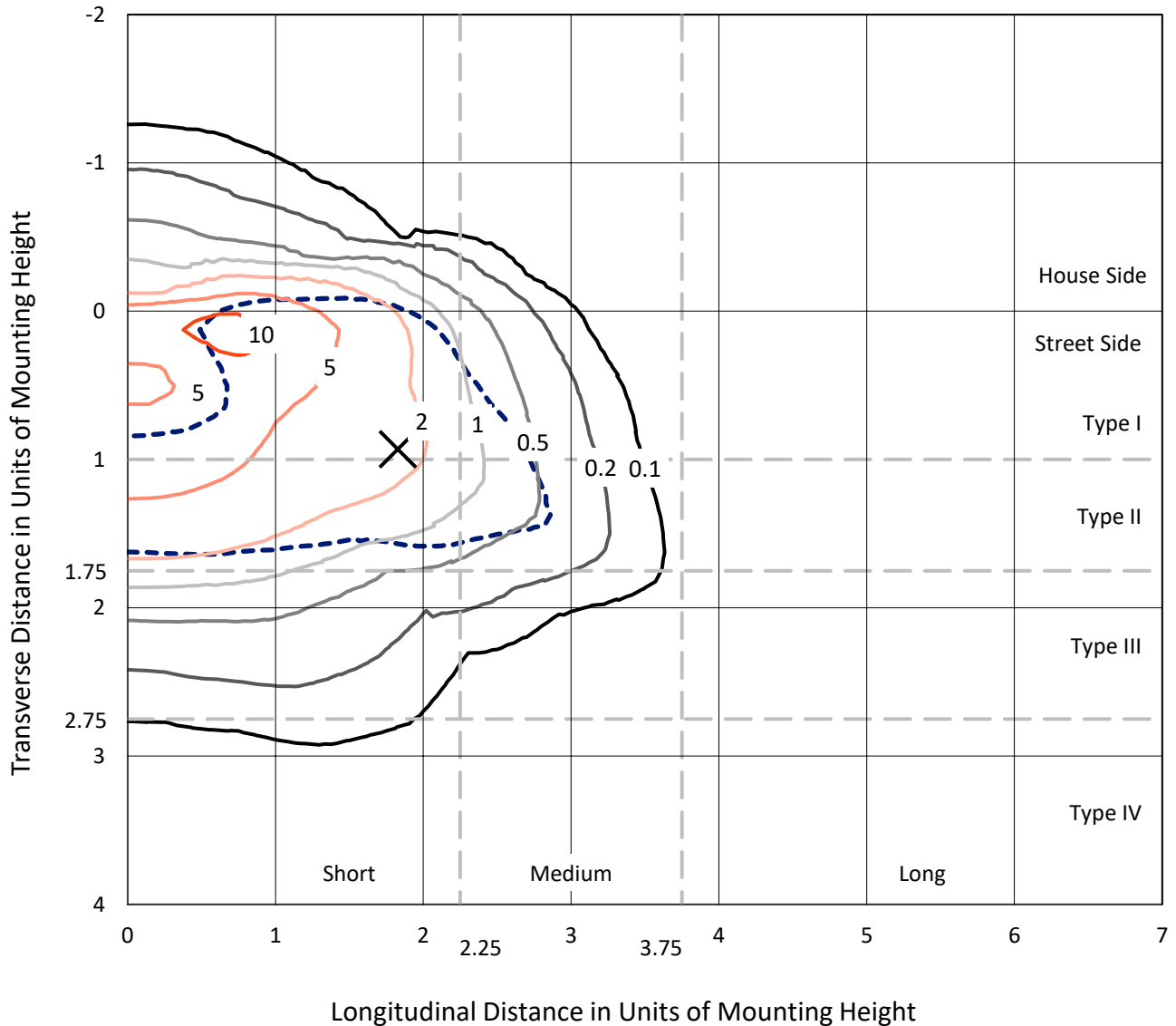
Lumens per Lamp: N/A
Luminaire Lumens: 16409.9 lumens
Efficiency: N/A
Efficacy: 115.8 lumens/watt
Luminous Opening: Rectangular (W 1.5' x L: 1' x H: 0')
IES Classification: Type II - Short
BUG Rating: B2 - U0 - G2

Input Watts (W): 141.7
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.97
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT

REPORT NUMBER: P1436973
 CATALOG NUMBER: GALN-SB5A-730-U-T2LG-HSS

Iso-Footcandle Lines of Horizontal Illumination

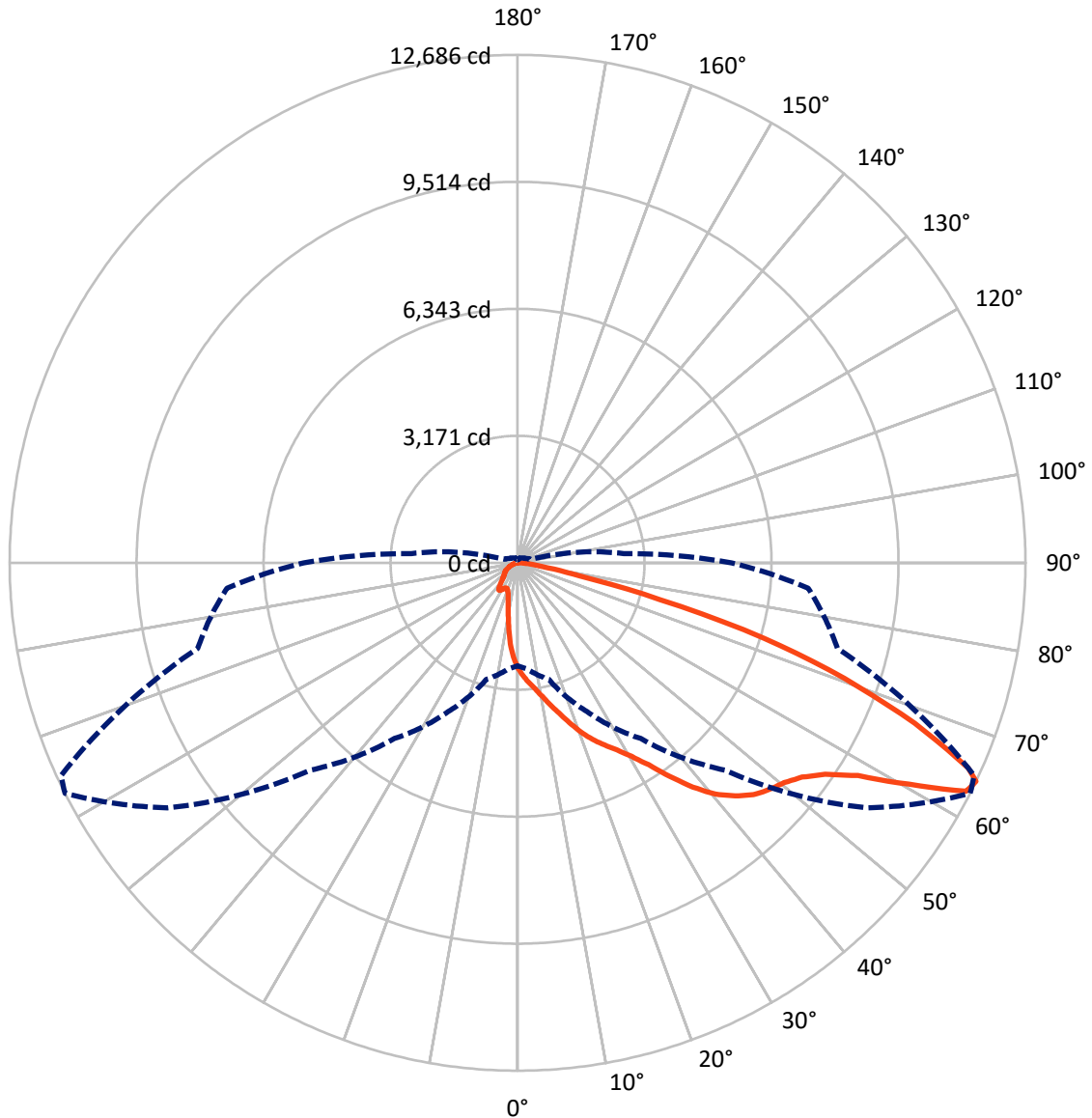
✕ Max cd
 - - - 1/2 Max cd



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

REPORT NUMBER: P1436973
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Luminous Intensity Polar Plot



— Vertical Plane Through 63-Deg Lateral - - - Horizontal Cone Through 64-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 1947.3 | 0.0 | 1947.3 |
| | % Fixture | 11.9 | 0.0 | 11.9 |
| Street Side | Lumens | 14462.5 | 0.0 | 14462.5 |
| | % Fixture | 88.1 | 0.0 | 88.1 |
| Total | Lumens | 16409.9 | 0.0 | 16409.9 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 223.4 | 1.4 |
| 10°-20° | 627.9 | 3.8 |
| 20°-30° | 1118.3 | 6.8 |
| 30°-40° | 2135.9 | 13.0 |
| 40°-50° | 3540.3 | 21.6 |
| 50°-60° | 4413.0 | 26.9 |
| 60°-70° | 3290.6 | 20.1 |
| 70°-80° | 943.8 | 5.8 |
| 80°-90° | 116.7 | 0.7 |
| 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° | 16409.9 | 100.0 |
| 0°-180° | 16409.9 | 100.0 |

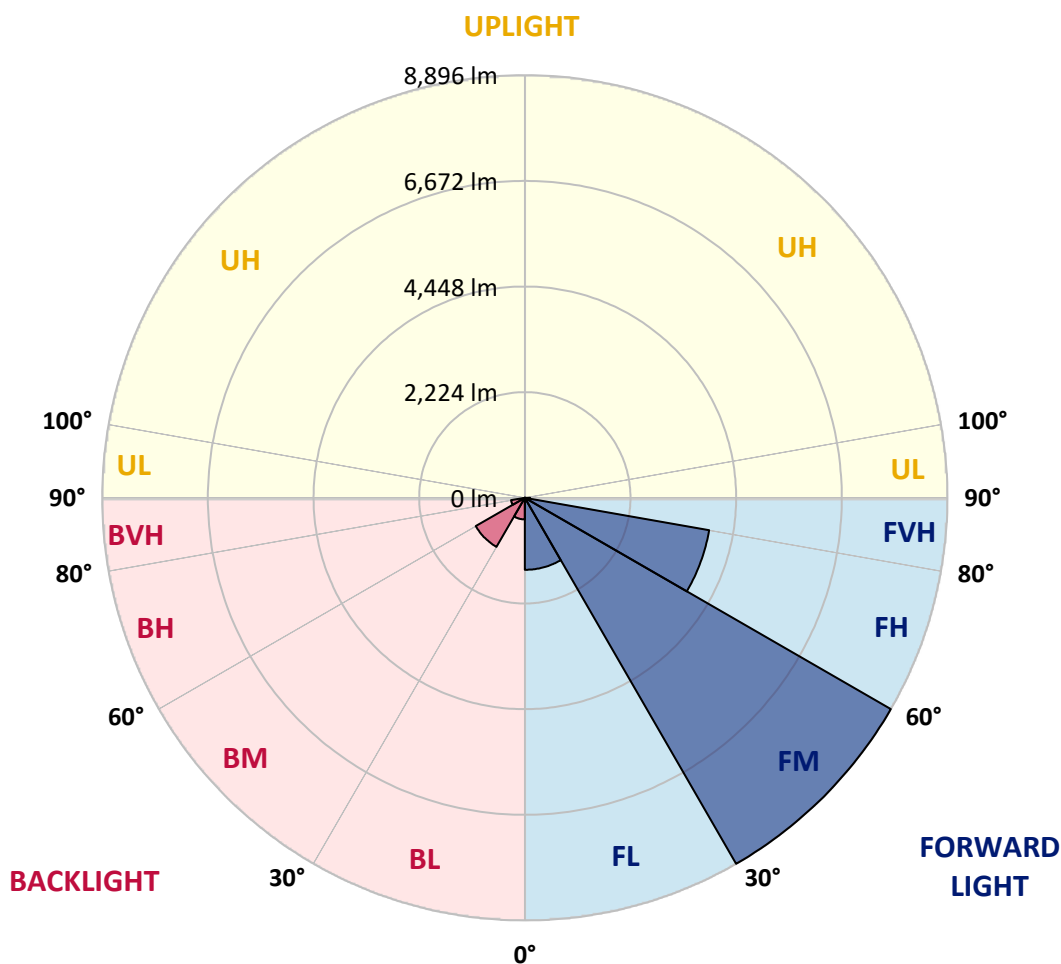


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1515.2 | 9.2 | | | |
| FM (30°-60°) | 8896.5 | 54.2 | | | |
| FH (60°-80°) | 3939.9 | 24.0 | | | G2/5000 |
| FVH (80°-90°) | 111.0 | 0.7 | | | G2/225 |
| BL (0°-30°) | 454.3 | 2.8 | B1/500 | | |
| BM (30°-60°) | 1192.7 | 7.3 | B2/2500 | | |
| BH (60°-80°) | 294.5 | 1.8 | B1/500 | | G1/500 |
| BVH (80°-90°) | 5.7 | 0.0 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B2-U0-G2
 Type II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 63° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|
| 0° | 2653.3 | 2653.3 | 2653.3 | 2653.3 | 2653.3 | 2653.3 | 2653.3 | 2653.3 | 2653.3 | 2653.3 | 2653.3 |
| 2.5° | 2973.2 | 2963.4 | 2953.6 | 2938.8 | 2919.1 | 2899.4 | 2874.8 | 2840.3 | 2825.6 | 2776.3 | 2717.3 |
| 5° | 3125.8 | 3125.8 | 3120.9 | 3111.1 | 3101.2 | 3081.5 | 3052.0 | 3007.7 | 2988.0 | 2919.1 | 2815.7 |
| 7.5° | 3165.2 | 3170.2 | 3184.9 | 3204.6 | 3234.1 | 3229.2 | 3229.2 | 3180.0 | 3170.2 | 3096.3 | 2958.5 |
| 10° | 3096.3 | 3101.2 | 3140.6 | 3194.8 | 3283.4 | 3367.1 | 3426.1 | 3396.6 | 3381.8 | 3308.0 | 3135.7 |
| 12.5° | 2997.9 | 2997.9 | 3061.9 | 3145.5 | 3283.4 | 3440.9 | 3613.2 | 3642.7 | 3647.6 | 3564.0 | 3357.2 |
| 15° | 2741.9 | 2751.7 | 2855.1 | 3022.5 | 3248.9 | 3495.0 | 3785.5 | 3898.7 | 3928.2 | 3874.1 | 3628.0 |
| 17.5° | 2402.2 | 2412.1 | 2515.4 | 2741.9 | 3081.5 | 3495.0 | 3933.2 | 4194.1 | 4233.4 | 4243.3 | 3972.5 |
| 20° | 2259.5 | 2259.5 | 2318.5 | 2490.8 | 2845.3 | 3401.5 | 4021.8 | 4509.1 | 4597.7 | 4706.0 | 4351.6 |
| 22.5° | 2279.2 | 2279.2 | 2313.6 | 2412.1 | 2697.6 | 3273.5 | 4075.9 | 4789.7 | 4971.8 | 5247.5 | 4838.9 |
| 25° | 2387.5 | 2387.5 | 2417.0 | 2481.0 | 2712.4 | 3253.8 | 4179.3 | 5040.7 | 5331.2 | 5853.0 | 5395.2 |
| 27.5° | 2559.8 | 2554.8 | 2579.4 | 2643.4 | 2855.1 | 3347.4 | 4351.6 | 5291.8 | 5616.7 | 6532.3 | 6035.1 |
| 30° | 2810.8 | 2796.0 | 2805.9 | 2879.7 | 3086.5 | 3564.0 | 4602.6 | 5611.8 | 5941.6 | 7275.6 | 6744.0 |
| 32.5° | 3391.7 | 3386.7 | 3244.0 | 3204.6 | 3426.1 | 3913.5 | 4947.2 | 6010.5 | 6379.7 | 8063.2 | 7472.5 |
| 35° | 4440.2 | 4509.1 | 4307.3 | 3790.4 | 3834.7 | 4381.1 | 5439.5 | 6552.0 | 6891.6 | 8900.1 | 8265.0 |
| 37.5° | 5503.5 | 5503.5 | 5419.8 | 4809.4 | 4499.3 | 4898.0 | 5971.1 | 7108.2 | 7462.7 | 9574.5 | 9028.0 |
| 40° | 6345.2 | 6389.5 | 6291.1 | 5833.3 | 5429.6 | 5488.7 | 6502.8 | 7595.6 | 7920.5 | 9988.0 | 9569.5 |
| 42.5° | 6970.4 | 6960.6 | 6921.2 | 6620.9 | 6394.5 | 6261.5 | 6985.2 | 7959.8 | 8270.0 | 10199.6 | 9909.2 |
| 45° | 7644.8 | 7644.8 | 7590.6 | 7344.5 | 7157.5 | 7044.2 | 7344.5 | 8265.0 | 8589.9 | 10327.6 | 10120.9 |
| 47.5° | 8348.7 | 8338.9 | 8284.7 | 8014.0 | 7812.2 | 7644.8 | 7708.8 | 8461.9 | 8786.8 | 10243.9 | 10155.3 |
| 50° | 8521.0 | 8511.2 | 8634.2 | 8644.1 | 8461.9 | 8142.0 | 7999.2 | 8629.3 | 8914.8 | 10248.8 | 10263.6 |
| 52.5° | 8319.2 | 8378.3 | 8560.4 | 8781.9 | 8988.7 | 8653.9 | 8309.3 | 8895.1 | 9190.5 | 10386.7 | 10534.4 |
| 55° | 7817.1 | 7841.7 | 8191.2 | 8545.6 | 9028.0 | 9146.2 | 8806.5 | 9318.5 | 9579.4 | 10519.6 | 10775.6 |
| 57.5° | 6881.8 | 6975.3 | 7349.4 | 7964.8 | 8698.2 | 9190.5 | 9672.9 | 10027.3 | 10224.2 | 10573.7 | 10642.7 |
| 60° | 5193.3 | 5242.6 | 6054.8 | 6852.3 | 8014.0 | 8836.1 | 10480.2 | 11228.4 | 11203.8 | 9963.3 | 9712.3 |
| 62.5° | 3160.3 | 3204.6 | 3785.5 | 5050.6 | 6512.6 | 8097.7 | 10751.0 | 12572.3 | 12439.4 | 8934.5 | 8176.4 |
| 64° | 2574.5 | 2658.2 | 3017.6 | 4100.5 | 5355.8 | 7324.8 | 10672.2 | 12685.5 | 12582.2 | 8270.0 | 7285.4 |
| 65° | 2200.4 | 2313.6 | 2682.8 | 3559.0 | 4553.4 | 6492.9 | 10455.6 | 12370.5 | 12301.6 | 7866.3 | 6547.1 |
| 67.5° | 1383.3 | 1437.4 | 1983.8 | 2766.5 | 3135.7 | 4154.7 | 8988.7 | 10696.8 | 10819.9 | 7009.8 | 4829.1 |
| 70° | 1028.8 | 1053.4 | 1363.6 | 2141.3 | 2446.5 | 2417.0 | 6172.9 | 8663.8 | 8693.3 | 5606.8 | 2914.2 |
| 72.5° | 748.2 | 753.2 | 955.0 | 1585.1 | 1914.9 | 1649.1 | 3253.8 | 6438.8 | 6227.1 | 3283.4 | 1590.0 |
| 75° | 497.2 | 516.9 | 669.5 | 1117.4 | 1491.5 | 1211.0 | 1481.7 | 3667.3 | 3603.3 | 1604.8 | 910.7 |
| 77.5° | 364.3 | 369.2 | 452.9 | 748.2 | 1171.6 | 891.0 | 895.9 | 1580.2 | 1629.4 | 955.0 | 575.9 |
| 80° | 206.7 | 216.6 | 295.4 | 457.8 | 763.0 | 610.4 | 502.1 | 763.0 | 876.2 | 649.8 | 384.0 |
| 82.5° | 123.1 | 132.9 | 211.7 | 300.3 | 521.8 | 251.1 | 256.0 | 418.4 | 521.8 | 467.6 | 206.7 |
| 85° | 73.8 | 78.8 | 132.9 | 162.4 | 310.1 | 167.4 | 93.5 | 206.7 | 270.7 | 275.7 | 113.2 |
| 87.5° | 49.2 | 49.2 | 73.8 | 68.9 | 88.6 | 78.8 | 39.4 | 54.1 | 68.9 | 93.5 | 44.3 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



REPORT NUMBER: P1436973

CATALOG NUMBER: GALN-SB5A-730-U-T2LG-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2653.3 | 2653.3 | 2653.3 | 2653.3 | 2653.3 | 2653.3 | 2653.3 | 2653.3 | 2653.3 | 2653.3 | 2653.3 |
| 2.5° | 2668.0 | 2638.5 | 2549.9 | 2431.8 | 2323.5 | 2239.8 | 2136.4 | 2067.5 | 2003.5 | 2003.5 | 1949.3 |
| 5° | 2732.0 | 2653.3 | 2436.7 | 2165.9 | 1875.5 | 1599.8 | 1422.6 | 1225.7 | 1161.7 | 1107.6 | 1117.4 |
| 7.5° | 2840.3 | 2697.6 | 2313.6 | 1826.3 | 1363.6 | 1068.2 | 871.3 | 782.7 | 743.3 | 718.7 | 723.6 |
| 10° | 2973.2 | 2776.3 | 2165.9 | 1481.7 | 1004.2 | 782.7 | 689.2 | 654.7 | 639.9 | 635.0 | 635.0 |
| 12.5° | 3155.4 | 2869.9 | 2018.3 | 1191.3 | 792.5 | 674.4 | 625.2 | 605.5 | 590.7 | 580.9 | 580.9 |
| 15° | 3372.0 | 2988.0 | 1846.0 | 979.6 | 694.1 | 620.2 | 580.9 | 561.2 | 541.5 | 536.6 | 536.6 |
| 17.5° | 3647.6 | 3111.1 | 1693.4 | 841.8 | 644.9 | 580.9 | 541.5 | 516.9 | 502.1 | 497.2 | 497.2 |
| 20° | 3952.8 | 3263.7 | 1540.8 | 763.0 | 610.4 | 541.5 | 502.1 | 482.4 | 467.6 | 457.8 | 462.7 |
| 22.5° | 4341.7 | 3455.7 | 1442.3 | 723.6 | 580.9 | 507.0 | 467.6 | 448.0 | 433.2 | 423.3 | 428.3 |
| 25° | 4770.0 | 3696.9 | 1388.2 | 723.6 | 561.2 | 482.4 | 438.1 | 418.4 | 403.7 | 393.8 | 393.8 |
| 27.5° | 5291.8 | 3967.6 | 1393.1 | 753.2 | 556.3 | 462.7 | 413.5 | 393.8 | 379.0 | 364.3 | 364.3 |
| 30° | 5867.7 | 4287.6 | 1447.2 | 807.3 | 566.1 | 443.0 | 393.8 | 364.3 | 354.4 | 339.7 | 339.7 |
| 32.5° | 6478.1 | 4656.8 | 1585.1 | 876.2 | 556.3 | 418.4 | 364.3 | 339.7 | 324.9 | 315.0 | 315.0 |
| 35° | 7123.0 | 5075.2 | 1757.4 | 905.8 | 507.0 | 384.0 | 339.7 | 315.0 | 305.2 | 300.3 | 295.4 |
| 37.5° | 7738.3 | 5439.5 | 1850.9 | 846.7 | 443.0 | 354.4 | 310.1 | 285.5 | 280.6 | 270.7 | 270.7 |
| 40° | 8215.8 | 5739.7 | 1796.7 | 723.6 | 408.6 | 324.9 | 285.5 | 260.9 | 251.1 | 241.2 | 241.2 |
| 42.5° | 8496.4 | 5848.0 | 1599.8 | 615.3 | 384.0 | 295.4 | 260.9 | 236.3 | 226.4 | 221.5 | 221.5 |
| 45° | 8658.8 | 5833.3 | 1368.5 | 551.3 | 359.3 | 270.7 | 236.3 | 221.5 | 206.7 | 201.8 | 196.9 |
| 47.5° | 8653.9 | 5680.7 | 1201.1 | 497.2 | 334.7 | 251.1 | 221.5 | 206.7 | 192.0 | 187.1 | 187.1 |
| 50° | 8619.5 | 5454.2 | 1014.1 | 457.8 | 315.0 | 236.3 | 206.7 | 196.9 | 182.1 | 177.2 | 172.3 |
| 52.5° | 8703.2 | 5326.3 | 846.7 | 433.2 | 290.4 | 226.4 | 201.8 | 187.1 | 167.4 | 162.4 | 162.4 |
| 55° | 8806.5 | 5252.4 | 679.3 | 408.6 | 270.7 | 221.5 | 192.0 | 177.2 | 157.5 | 152.6 | 152.6 |
| 57.5° | 8506.2 | 4971.8 | 561.2 | 369.2 | 246.1 | 211.7 | 182.1 | 172.3 | 152.6 | 137.8 | 137.8 |
| 60° | 7561.1 | 4110.4 | 462.7 | 324.9 | 226.4 | 196.9 | 172.3 | 157.5 | 137.8 | 118.1 | 118.1 |
| 62.5° | 6148.3 | 3135.7 | 384.0 | 275.7 | 211.7 | 182.1 | 157.5 | 142.8 | 118.1 | 93.5 | 93.5 |
| 64° | 5341.0 | 2663.1 | 344.6 | 241.2 | 201.8 | 167.4 | 142.8 | 128.0 | 103.4 | 78.8 | 73.8 |
| 65° | 4789.7 | 2353.0 | 320.0 | 226.4 | 196.9 | 157.5 | 137.8 | 123.1 | 93.5 | 73.8 | 68.9 |
| 67.5° | 3372.0 | 1580.2 | 256.0 | 187.1 | 172.3 | 132.9 | 118.1 | 103.4 | 83.7 | 64.0 | 59.1 |
| 70° | 1964.1 | 895.9 | 201.8 | 157.5 | 132.9 | 103.4 | 98.5 | 93.5 | 73.8 | 49.2 | 49.2 |
| 72.5° | 1068.2 | 448.0 | 152.6 | 128.0 | 103.4 | 73.8 | 83.7 | 73.8 | 59.1 | 39.4 | 34.5 |
| 75° | 654.7 | 275.7 | 113.2 | 93.5 | 68.9 | 54.1 | 64.0 | 54.1 | 34.5 | 24.6 | 19.7 |
| 77.5° | 438.1 | 177.2 | 83.7 | 64.0 | 44.3 | 34.5 | 44.3 | 29.5 | 14.8 | 4.9 | 4.9 |
| 80° | 270.7 | 123.1 | 54.1 | 39.4 | 24.6 | 14.8 | 9.8 | 4.9 | 4.9 | 0.0 | 0.0 |
| 82.5° | 118.1 | 78.8 | 29.5 | 19.7 | 9.8 | 4.9 | 4.9 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 64.0 | 24.6 | 9.8 | 4.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 19.7 | 9.8 | 4.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

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: SP1-2407-184-4

Test Date: 10/10/2024

Luminaire Tested: GSS-SB1A-730-U-5WQ

Data in this report applies to families of products including GSS-SB1A-730-U-5WQ

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-184-4
 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-730-U-5WQ**
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI 3000K CCT 26 LEDS

Spectral Parameters

CCT (K): 2985
 CIE u': 0.2504
 CIE v': 0.5243
 Duv: 0.0019
 CIE x: 0.4408
 CIE y: 0.4101
 CIE z: 0.1491
 Peak Wavelength (nm): 595
 Dominant Wavelength (nm): 582
 Purity: 55.41818
 Rf: 73.8
 Rg: 94.4

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 70.8 | | |
| R1: | 66.3 | R9: | -43.2 |
| R2: | 80.6 | R10: | 57.6 |
| R3: | 94.5 | R11: | 64.8 |
| R4: | 68.2 | R12: | 53.5 |
| R5: | 66.5 | R13: | 68.7 |
| R6: | 74.7 | R14: | 97.0 |
| R7: | 76.2 | R15: | 56.4 |
| R8: | 39.6 | | |



Test Conditions

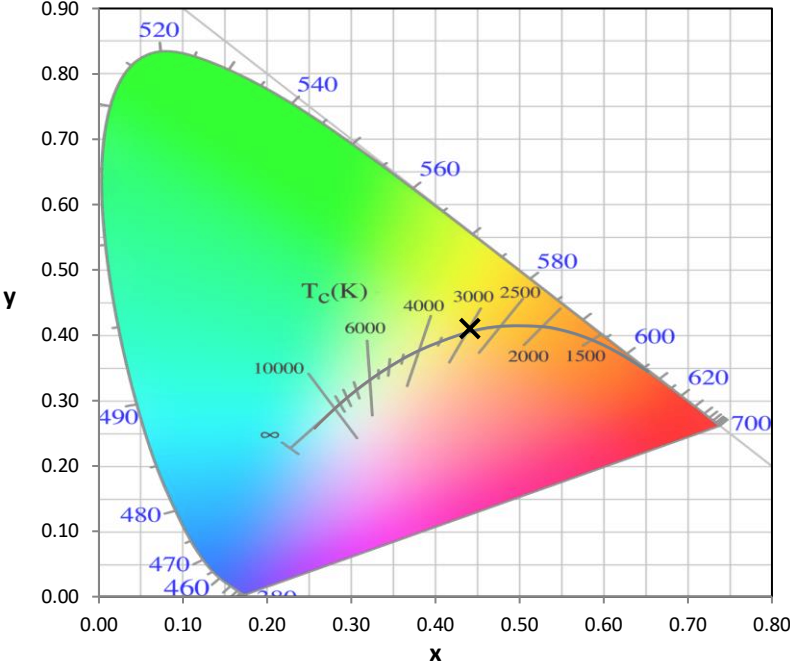
Stabilization Time: 36M
 Operation Time: 1H 36M
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-4

| 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: SP1-2407-184-4

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: SP1-2407-184-4

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 | 142 | NR | 620 | 803 | NR | 750 | 17 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 189 | NR | 625 | 734 | NR | 755 | 15 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 240 | NR | 630 | 670 | NR | 760 | 13 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 290 | NR | 635 | 600 | NR | 765 | 11 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 335 | NR | 640 | 535 | NR | 770 | 9 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 375 | NR | 645 | 473 | NR | 775 | 8 | NR | 905 | 0 | NR |
| 390 | 1 | NR | 520 | 408 | NR | 650 | 415 | NR | 780 | 7 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 434 | NR | 655 | 362 | NR | 785 | 6 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 461 | NR | 660 | 313 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 8 | NR | 535 | 486 | NR | 665 | 271 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 16 | NR | 540 | 514 | NR | 670 | 231 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 33 | NR | 545 | 549 | NR | 675 | 198 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 69 | NR | 550 | 591 | NR | 680 | 169 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 131 | NR | 555 | 640 | NR | 685 | 144 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 227 | NR | 560 | 695 | NR | 690 | 123 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 369 | NR | 565 | 757 | NR | 695 | 104 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 517 | NR | 570 | 822 | NR | 700 | 88 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 498 | NR | 575 | 882 | NR | 705 | 75 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 315 | NR | 580 | 935 | NR | 710 | 63 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 204 | NR | 585 | 972 | NR | 715 | 54 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 145 | NR | 590 | 996 | NR | 720 | 46 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 100 | NR | 595 | 1000 | NR | 725 | 39 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 78 | NR | 600 | 989 | NR | 730 | 33 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 76 | NR | 605 | 960 | NR | 735 | 28 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 83 | NR | 610 | 918 | NR | 740 | 24 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 105 | NR | 615 | 864 | NR | 745 | 20 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2407-184-4

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.19

| 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 | 142 | NR | 620 | 803 | NR | 750 | 17 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 189 | NR | 625 | 734 | NR | 755 | 15 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 240 | NR | 630 | 670 | NR | 760 | 13 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 290 | NR | 635 | 600 | NR | 765 | 11 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 335 | NR | 640 | 535 | NR | 770 | 9 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 375 | NR | 645 | 473 | NR | 775 | 8 | NR | 905 | 0 | NR |
| 390 | 1 | NR | 520 | 408 | NR | 650 | 415 | NR | 780 | 7 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 434 | NR | 655 | 362 | NR | 785 | 6 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 461 | NR | 660 | 313 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 8 | NR | 535 | 486 | NR | 665 | 271 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 16 | NR | 540 | 514 | NR | 670 | 231 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 33 | NR | 545 | 549 | NR | 675 | 198 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 69 | NR | 550 | 591 | NR | 680 | 169 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 131 | NR | 555 | 640 | NR | 685 | 144 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 227 | NR | 560 | 695 | NR | 690 | 123 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 369 | NR | 565 | 757 | NR | 695 | 104 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 517 | NR | 570 | 822 | NR | 700 | 88 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 498 | NR | 575 | 882 | NR | 705 | 75 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 315 | NR | 580 | 935 | NR | 710 | 63 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 204 | NR | 585 | 972 | NR | 715 | 54 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 145 | NR | 590 | 996 | NR | 720 | 46 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 100 | NR | 595 | 1000 | NR | 725 | 39 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 78 | NR | 600 | 989 | NR | 730 | 33 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 76 | NR | 605 | 960 | NR | 735 | 28 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 83 | NR | 610 | 918 | NR | 740 | 24 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 105 | NR | 615 | 864 | NR | 745 | 20 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2407-184-4

Melanopic Flux vs. Wavelength



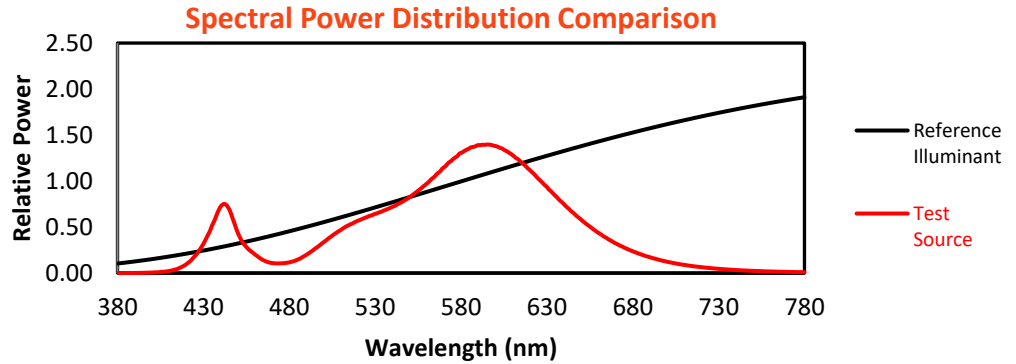
Melanopic Lumens: NR

M/P: 2.13

| 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 | 142 | NR | 620 | 803 | NR | 750 | 17 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 189 | NR | 625 | 734 | NR | 755 | 15 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 240 | NR | 630 | 670 | NR | 760 | 13 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 290 | NR | 635 | 600 | NR | 765 | 11 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 335 | NR | 640 | 535 | NR | 770 | 9 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 375 | NR | 645 | 473 | NR | 775 | 8 | NR | 905 | 0 | NR |
| 390 | 1 | NR | 520 | 408 | NR | 650 | 415 | NR | 780 | 7 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 434 | NR | 655 | 362 | NR | 785 | 6 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 461 | NR | 660 | 313 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 8 | NR | 535 | 486 | NR | 665 | 271 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 16 | NR | 540 | 514 | NR | 670 | 231 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 33 | NR | 545 | 549 | NR | 675 | 198 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 69 | NR | 550 | 591 | NR | 680 | 169 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 131 | NR | 555 | 640 | NR | 685 | 144 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 227 | NR | 560 | 695 | NR | 690 | 123 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 369 | NR | 565 | 757 | NR | 695 | 104 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 517 | NR | 570 | 822 | NR | 700 | 88 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 498 | NR | 575 | 882 | NR | 705 | 75 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 315 | NR | 580 | 935 | NR | 710 | 63 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 204 | NR | 585 | 972 | NR | 715 | 54 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 145 | NR | 590 | 996 | NR | 720 | 46 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 100 | NR | 595 | 1000 | NR | 725 | 39 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 78 | NR | 600 | 989 | NR | 730 | 33 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 76 | NR | 605 | 960 | NR | 735 | 28 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 83 | NR | 610 | 918 | NR | 740 | 24 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 105 | NR | 615 | 864 | NR | 745 | 20 | NR | 875 | 1 | NR | | | |

Summary

$R_f = 73.8$
 $R_g = 94.4$
 CIE $R_a = 70.8$
 $R_g = -43.2$

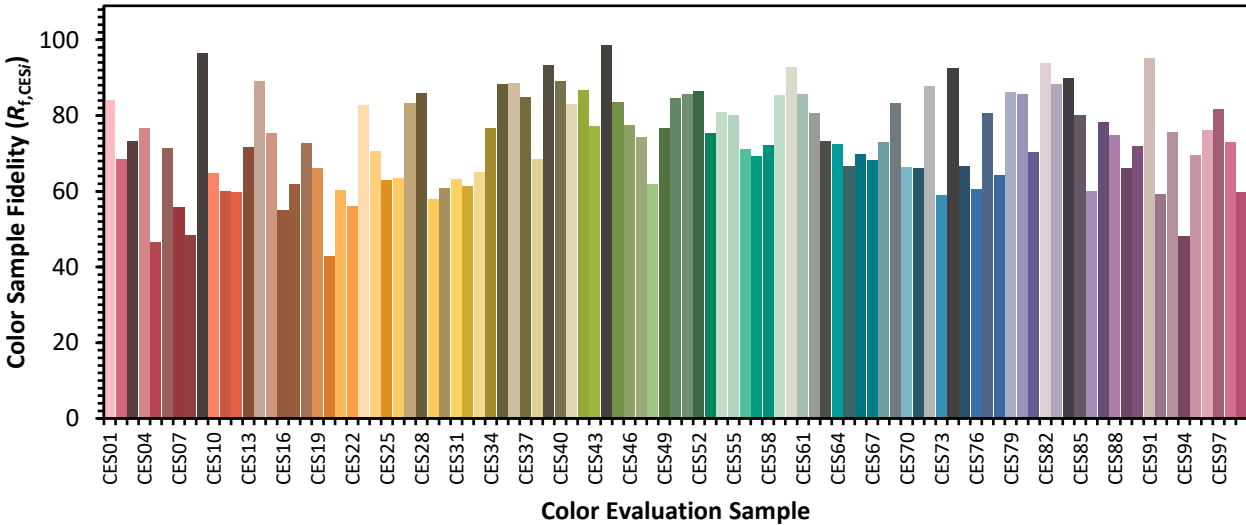


Color Vector Graphics

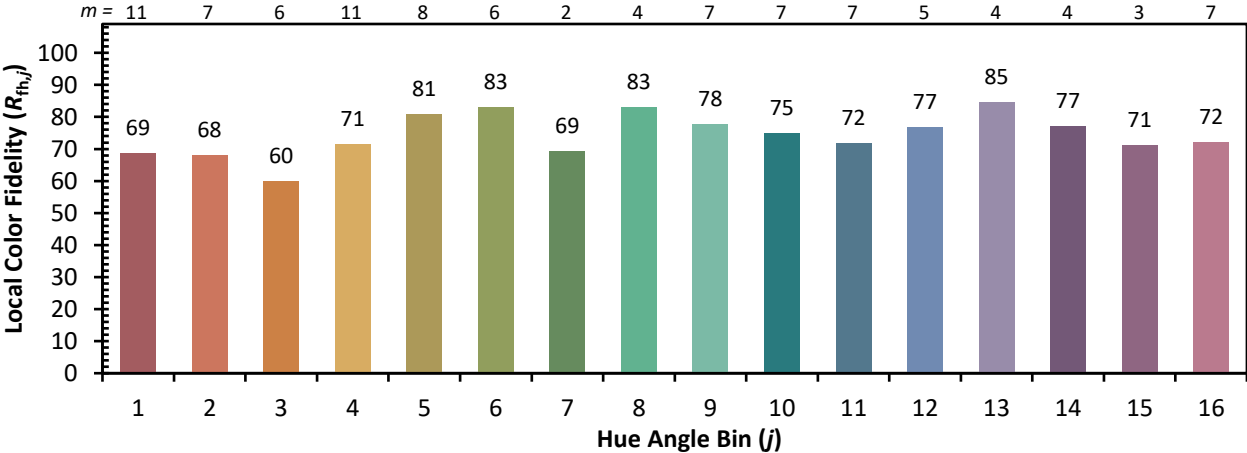


Individual Sample Fidelity Index ($R_{f,i}$)

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 63 | CES51 = 86 | CES76 = 61 |
| CES02 = 62 | CES27 = 83 | CES52 = 86 | CES77 = 81 |
| CES03 = 31 | CES28 = 86 | CES53 = 75 | CES78 = 64 |
| CES04 = 71 | CES29 = 58 | CES54 = 81 | CES79 = 86 |
| CES05 = 49 | CES30 = 61 | CES55 = 80 | CES80 = 86 |
| CES06 = 51 | CES31 = 63 | CES56 = 71 | CES81 = 70 |
| CES07 = 41 | CES32 = 61 | CES57 = 69 | CES82 = 94 |
| CES08 = 40 | CES33 = 65 | CES58 = 72 | CES83 = 88 |
| CES09 = 29 | CES34 = 77 | CES59 = 85 | CES84 = 90 |
| CES10 = 76 | CES35 = 88 | CES60 = 93 | CES85 = 80 |
| CES11 = 59 | CES36 = 89 | CES61 = 86 | CES86 = 60 |
| CES12 = 65 | CES37 = 85 | CES62 = 81 | CES87 = 78 |
| CES13 = 43 | CES38 = 69 | CES63 = 73 | CES88 = 75 |
| CES14 = 74 | CES39 = 93 | CES64 = 72 | CES89 = 66 |
| CES15 = 71 | CES40 = 89 | CES65 = 67 | CES90 = 72 |
| CES16 = 47 | CES41 = 83 | CES66 = 70 | CES91 = 95 |
| CES17 = 50 | CES42 = 87 | CES67 = 68 | CES92 = 59 |
| CES18 = 56 | CES43 = 77 | CES68 = 73 | CES93 = 76 |
| CES19 = 73 | CES44 = 99 | CES69 = 83 | CES94 = 48 |
| CES20 = 66 | CES45 = 83 | CES70 = 66 | CES95 = 70 |
| CES21 = 87 | CES46 = 77 | CES71 = 66 | CES96 = 76 |
| CES22 = 79 | CES47 = 74 | CES72 = 88 | CES97 = 82 |
| CES23 = 92 | CES48 = 62 | CES73 = 59 | CES98 = 73 |
| CES24 = 91 | CES49 = 77 | CES74 = 93 | CES99 = 60 |
| CES25 = 73 | CES50 = 85 | CES75 = 67 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)