

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: P1435657

Luminaire Tested: **GALN-SB4C-935-U-T4LG**

Issue Date: 03/24/202

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: P1435657  
 Test Lab: INNOVATION CENTER(G1)  
 Issue Date: 03/24/202  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: McGRAW-EDISON  
 Catalog Number: GALN-SB4C-935-U-T4LG  
 Description: GALLEON II AREA AND ROADWAY HIGH DENSITY LUMINAIRE 615mA 4xLight Square PACKAGE 90CRI 3500K FIXTURE w/ TYPE IV LOW GLARE  
 Light Source: (104) 3500K CCT, 90 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**

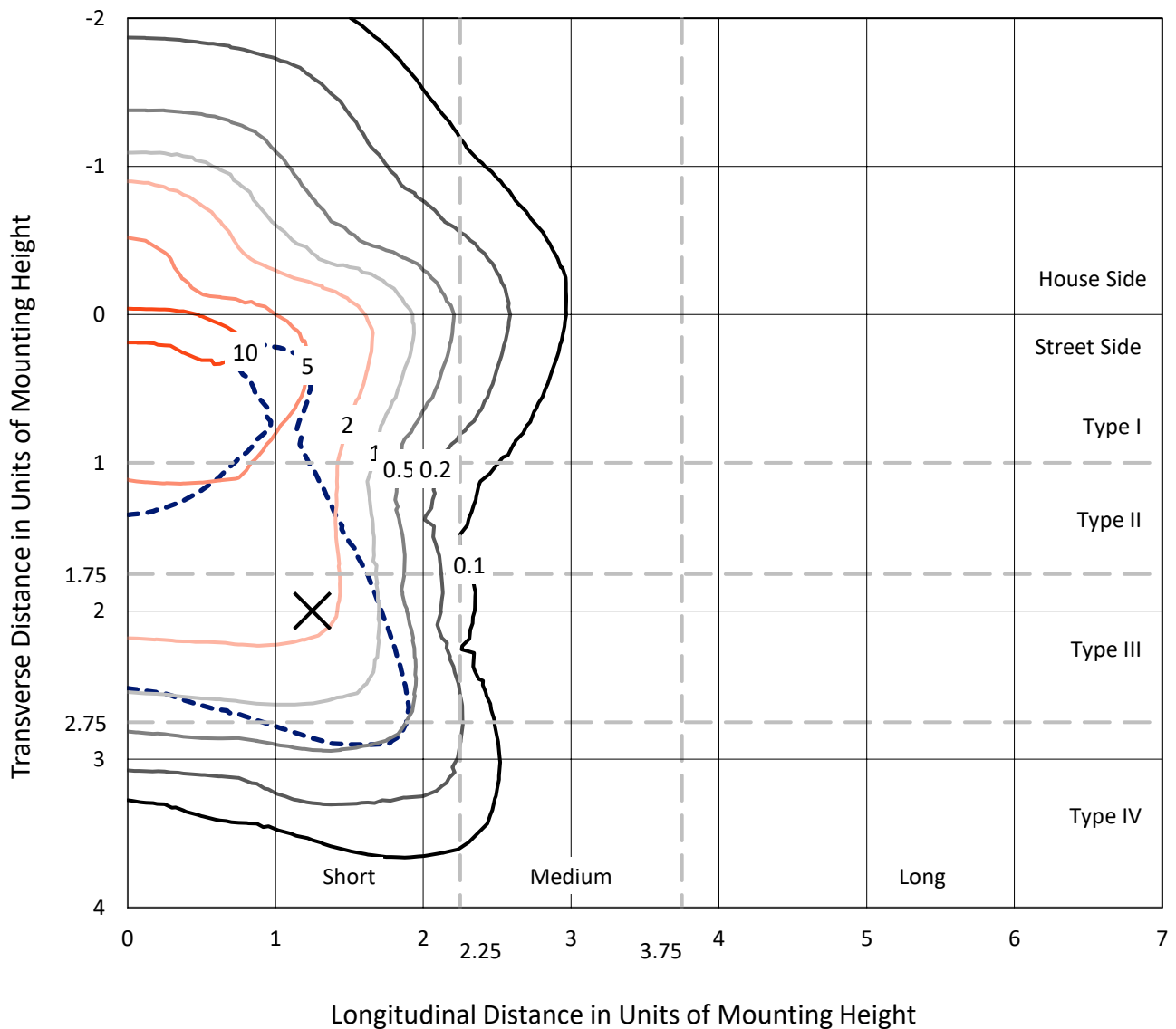
Lumens per Lamp: N/A  
 Luminaire Lumens: 20448.7 lumens  
 Efficiency: N/A  
 Efficacy: 101.9 lumens/watt  
 Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')  
 IES Classification: Type IV - Short  
 BUG Rating: B3 - U0 - G3

Input Watts (W): 200.7  
 Input Voltage (V): 120  
 Input Current (Ain): 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: P1435657  
 CATALOG NUMBER: GALN-SB4C-935-U-T4LG

### Iso-Footcandle Lines of Horizontal Illumination

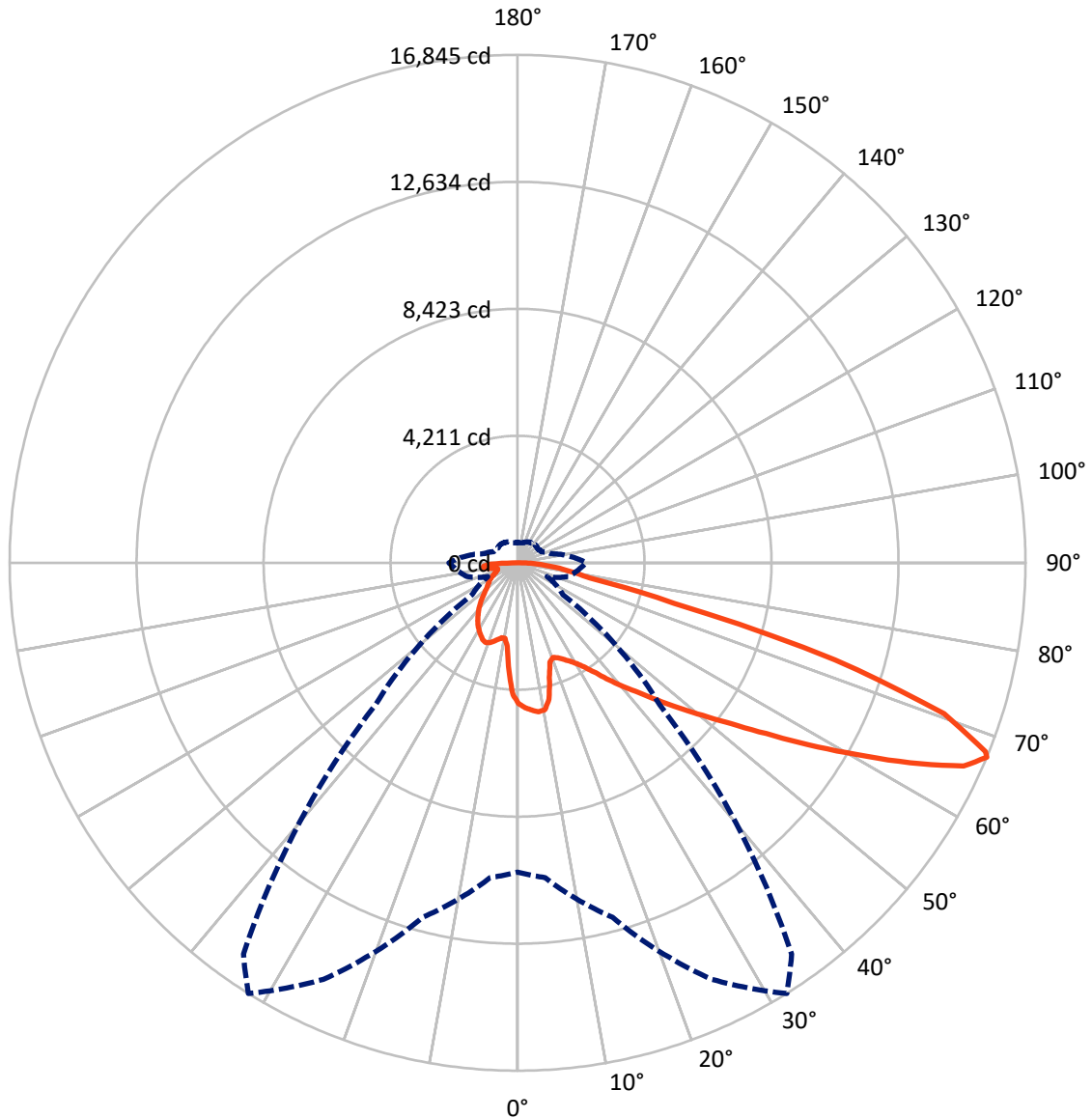
✕ Max cd  
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 12.6 fc  
 Type IV - Short - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 32-Deg Lateral      - - - Horizontal Cone Through 67-Deg Vertical

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**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 4841.2   | 0.0    | 4841.2  |
|                    | % Fixture | 23.7     | 0.0    | 23.7    |
| <b>Street Side</b> | Lumens    | 15607.5  | 0.0    | 15607.5 |
|                    | % Fixture | 76.3     | 0.0    | 76.3    |
| <b>Total</b>       | Lumens    | 20448.7  | 0.0    | 20448.7 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 408.2   | 2.0       |
| 10°-20°   | 1083.9  | 5.3       |
| 20°-30°   | 1770.0  | 8.7       |
| 30°-40°   | 2608.9  | 12.8      |
| 40°-50°   | 3597.8  | 17.6      |
| 50°-60°   | 4545.1  | 22.2      |
| 60°-70°   | 4398.8  | 21.5      |
| 70°-80°   | 1569.9  | 7.7       |
| 80°-90°   | 466.2   | 2.3       |
| 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°    | 20448.7 | 100.0     |
| 0°-180°   | 20448.7 | 100.0     |

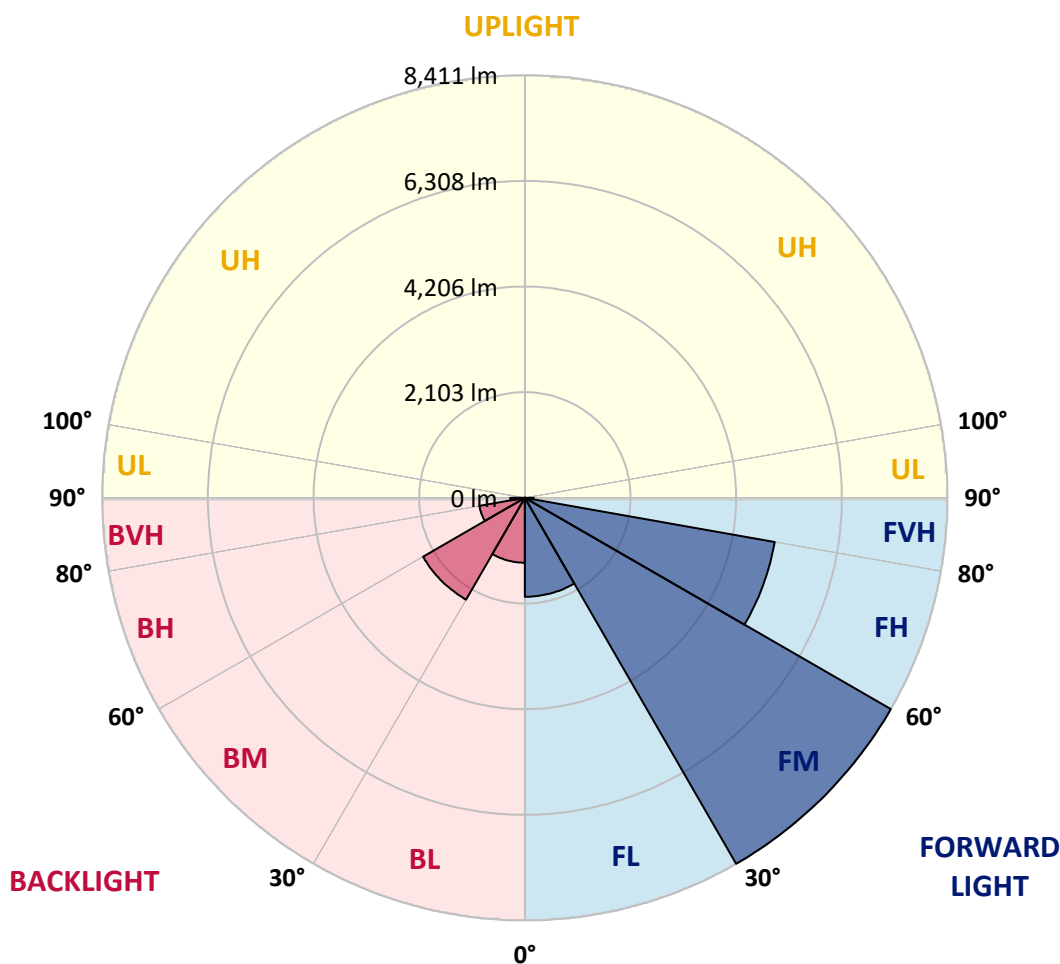


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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone           | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|----------------|--------|-----------|-------------------------|------|---------|
|                |        |           | B                       | U    | G       |
| FL (0°-30°)    | 1970.3 | 9.6       |                         |      |         |
| FM (30°-60°)   | 8411.2 | 41.1      |                         |      |         |
| FH (60°-80°)   | 5050.4 | 24.7      |                         |      | G3/7500 |
| FVH (80°-90°)  | 175.7  | 0.9       |                         |      | G2/225  |
| BL (0°-30°)    | 1291.9 | 6.3       | B3/2500                 |      |         |
| BM (30°-60°)   | 2340.5 | 11.4      | B2/2500                 |      |         |
| BH (60°-80°)   | 918.3  | 4.5       | B2/1000                 |      | G2/1000 |
| BVH (80°-90°)  | 290.5  | 1.4       |                         |      | G3/500  |
| UL (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B3-U0-G3**  
 Type IV Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 32°     | 35°     | 45°    | 55°    | 65°    | 75°    | 85°    |
|-------|---------|---------|---------|---------|---------|---------|--------|--------|--------|--------|--------|
| 0°    | 4672.1  | 4672.1  | 4672.1  | 4672.1  | 4672.1  | 4672.1  | 4672.1 | 4672.1 | 4672.1 | 4672.1 | 4672.1 |
| 2.5°  | 4849.2  | 4835.6  | 4822.0  | 4831.0  | 4812.9  | 4808.3  | 4785.6 | 4776.6 | 4749.3 | 4744.8 | 4694.8 |
| 5°    | 4949.1  | 4921.8  | 4917.3  | 4926.4  | 4908.2  | 4908.2  | 4890.1 | 4876.4 | 4835.6 | 4812.9 | 4740.2 |
| 7.5°  | 4949.1  | 4944.6  | 4953.6  | 4985.4  | 4990.0  | 4990.0  | 4990.0 | 4994.5 | 4953.6 | 4921.8 | 4808.3 |
| 10°   | 4667.6  | 4622.2  | 4722.1  | 4881.0  | 4958.2  | 5003.6  | 5085.3 | 5135.2 | 5103.5 | 5080.8 | 4926.4 |
| 12.5° | 3827.6  | 3832.1  | 3991.1  | 4331.6  | 4640.3  | 4772.0  | 5112.5 | 5294.2 | 5307.8 | 5271.5 | 5076.2 |
| 15°   | 3246.4  | 3269.1  | 3350.9  | 3596.0  | 3950.2  | 4145.4  | 4953.6 | 5434.9 | 5543.9 | 5507.6 | 5257.8 |
| 17.5° | 3069.3  | 3083.0  | 3119.3  | 3260.0  | 3459.8  | 3618.7  | 4522.3 | 5525.7 | 5829.9 | 5784.5 | 5462.2 |
| 20°   | 3042.1  | 3051.2  | 3096.6  | 3214.6  | 3350.9  | 3441.7  | 4081.9 | 5453.1 | 6097.8 | 6079.7 | 5648.3 |
| 22.5° | 3046.6  | 3055.7  | 3114.7  | 3278.2  | 3419.0  | 3496.1  | 3941.1 | 5285.1 | 6379.3 | 6397.5 | 5839.0 |
| 25°   | 3055.7  | 3060.3  | 3151.1  | 3369.0  | 3546.1  | 3641.4  | 4031.9 | 5135.2 | 6615.4 | 6769.8 | 6047.9 |
| 27.5° | 3105.7  | 3119.3  | 3241.9  | 3487.1  | 3695.9  | 3804.9  | 4245.3 | 5185.2 | 6874.2 | 7192.1 | 6297.6 |
| 30°   | 3241.9  | 3251.0  | 3400.8  | 3655.1  | 3882.1  | 3995.6  | 4499.6 | 5385.0 | 7192.1 | 7628.0 | 6542.8 |
| 32.5° | 3455.3  | 3464.4  | 3636.9  | 3900.2  | 4145.4  | 4281.6  | 4831.0 | 5766.4 | 7546.2 | 8086.5 | 6788.0 |
| 35°   | 3750.4  | 3755.0  | 3950.2  | 4231.7  | 4490.5  | 4644.9  | 5217.0 | 6197.7 | 7914.0 | 8477.0 | 6969.6 |
| 37.5° | 4100.0  | 4131.8  | 4331.6  | 4626.7  | 4930.9  | 5071.7  | 5671.0 | 6701.7 | 8240.9 | 8808.5 | 7074.0 |
| 40°   | 4581.3  | 4590.4  | 4785.6  | 5071.7  | 5394.1  | 5530.3  | 6125.1 | 7178.5 | 8599.6 | 9003.7 | 7169.4 |
| 42.5° | 5076.2  | 5153.4  | 5316.9  | 5634.7  | 5875.3  | 5984.3  | 6642.7 | 7614.3 | 8885.7 | 9012.8 | 7128.5 |
| 45°   | 5739.1  | 5798.2  | 5961.6  | 6243.1  | 6483.8  | 6610.9  | 7201.2 | 8013.9 | 9031.0 | 8935.6 | 7037.7 |
| 47.5° | 6497.4  | 6533.7  | 6665.4  | 6919.6  | 7187.5  | 7278.3  | 7782.3 | 8240.9 | 9085.4 | 8881.1 | 6996.8 |
| 50°   | 7391.9  | 7391.9  | 7487.2  | 7705.1  | 7950.3  | 8077.5  | 8318.1 | 8377.1 | 9244.4 | 8785.8 | 7101.3 |
| 52.5° | 8145.6  | 8181.9  | 8309.0  | 8617.8  | 8863.0  | 9008.3  | 8735.8 | 8586.0 | 8922.0 | 8254.5 | 7133.0 |
| 55°   | 8867.5  | 8908.4  | 9194.4  | 9580.3  | 9998.1  | 10157.0 | 9258.0 | 8481.6 | 7836.8 | 7478.1 | 6915.1 |
| 57.5° | 9557.6  | 9643.9  | 10002.6 | 10756.3 | 11387.4 | 11373.8 | 9920.9 | 7546.2 | 6397.5 | 6620.0 | 6438.4 |
| 60°   | 10520.2 | 10611.0 | 11183.1 | 12132.1 | 12904.0 | 12581.6 | 9930.0 | 6279.4 | 4985.4 | 5285.1 | 5543.9 |
| 62.5° | 11323.9 | 11478.3 | 12318.2 | 13898.3 | 14606.6 | 14102.6 | 9108.1 | 4808.3 | 3310.0 | 3686.8 | 4286.2 |
| 65°   | 11251.2 | 11455.6 | 12758.7 | 15196.9 | 16254.8 | 15787.1 | 7904.9 | 3042.1 | 1707.2 | 2519.9 | 3001.2 |
| 67°   | 10261.4 | 10483.9 | 12172.9 | 15242.3 | 16845.1 | 15846.2 | 6674.5 | 1838.9 | 1085.2 | 1748.1 | 2084.1 |
| 67.5° | 9693.9  | 10020.8 | 11882.4 | 15156.0 | 16736.1 | 15596.4 | 6120.5 | 1539.2 | 1021.6 | 1625.5 | 1897.9 |
| 70°   | 5961.6  | 6488.3  | 8917.4  | 13398.9 | 15001.6 | 13053.8 | 3400.8 | 871.8  | 830.9  | 1089.7 | 1312.2 |
| 72.5° | 1793.5  | 1952.4  | 3441.7  | 8595.1  | 11010.6 | 9675.7  | 1530.1 | 672.0  | 744.6  | 876.3  | 1012.5 |
| 75°   | 871.8   | 930.8   | 1421.2  | 3514.3  | 5362.3  | 5335.0  | 853.6  | 576.6  | 690.1  | 735.6  | 799.1  |
| 77.5° | 558.5   | 594.8   | 885.4   | 1966.0  | 2456.4  | 2188.5  | 617.5  | 504.0  | 613.0  | 603.9  | 594.8  |
| 80°   | 349.6   | 367.8   | 567.6   | 1139.7  | 1811.6  | 1512.0  | 454.0  | 413.2  | 526.7  | 467.7  | 422.3  |
| 82.5° | 227.0   | 249.7   | 363.2   | 694.7   | 1294.0  | 1126.0  | 299.7  | 295.1  | 435.9  | 372.3  | 326.9  |
| 85°   | 149.8   | 168.0   | 231.6   | 408.6   | 767.3   | 803.7   | 195.2  | 204.3  | 336.0  | 281.5  | 249.7  |
| 87.5° | 54.5    | 68.1    | 118.1   | 181.6   | 358.7   | 445.0   | 81.7   | 77.2   | 163.5  | 131.7  | 104.4  |
| 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: P1435657  
 CATALOG NUMBER: GALN-SB4C-935-U-T4LG

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 4672.1 | 4672.1 | 4672.1 | 4672.1 | 4672.1 | 4672.1 | 4672.1 | 4672.1 | 4672.1 | 4672.1 | 4672.1 |
| 2.5°  | 4685.7 | 4672.1 | 4608.6 | 4554.1 | 4513.2 | 4458.7 | 4399.7 | 4331.6 | 4286.2 | 4295.3 | 4281.6 |
| 5°    | 4708.4 | 4672.1 | 4549.5 | 4363.4 | 4181.8 | 3954.7 | 3664.1 | 3491.6 | 3359.9 | 3291.8 | 3310.0 |
| 7.5°  | 4758.4 | 4694.8 | 4436.0 | 4059.2 | 3587.0 | 3123.8 | 2837.8 | 2674.3 | 2597.1 | 2565.4 | 2560.8 |
| 10°   | 4844.7 | 4735.7 | 4290.7 | 3587.0 | 2969.5 | 2656.2 | 2551.7 | 2506.3 | 2497.2 | 2497.2 | 2492.7 |
| 12.5° | 4949.1 | 4776.6 | 4045.5 | 3128.4 | 2674.3 | 2560.8 | 2542.7 | 2547.2 | 2560.8 | 2574.4 | 2551.7 |
| 15°   | 5076.2 | 4794.7 | 3741.3 | 2851.4 | 2615.3 | 2588.1 | 2615.3 | 2647.1 | 2669.8 | 2687.9 | 2665.2 |
| 17.5° | 5203.4 | 4776.6 | 3455.3 | 2719.7 | 2624.4 | 2660.7 | 2715.2 | 2765.1 | 2778.8 | 2806.0 | 2787.8 |
| 20°   | 5294.2 | 4713.0 | 3210.1 | 2669.8 | 2647.1 | 2728.8 | 2796.9 | 2851.4 | 2878.6 | 2896.8 | 2878.6 |
| 22.5° | 5362.3 | 4631.3 | 3033.0 | 2619.8 | 2647.1 | 2747.0 | 2828.7 | 2892.3 | 2924.0 | 2942.2 | 2919.5 |
| 25°   | 5421.3 | 4517.7 | 2896.8 | 2547.2 | 2592.6 | 2687.9 | 2778.8 | 2842.3 | 2887.7 | 2915.0 | 2901.3 |
| 27.5° | 5493.9 | 4426.9 | 2769.7 | 2438.2 | 2479.1 | 2569.9 | 2665.2 | 2742.4 | 2828.7 | 2874.1 | 2865.0 |
| 30°   | 5575.7 | 4381.5 | 2647.1 | 2320.2 | 2347.4 | 2438.2 | 2551.7 | 2656.2 | 2774.2 | 2833.2 | 2833.2 |
| 32.5° | 5671.0 | 4349.8 | 2533.6 | 2206.7 | 2229.4 | 2329.3 | 2438.2 | 2533.6 | 2660.7 | 2756.1 | 2751.5 |
| 35°   | 5711.9 | 4313.4 | 2442.8 | 2102.2 | 2147.6 | 2229.4 | 2315.6 | 2379.2 | 2510.9 | 2624.4 | 2633.5 |
| 37.5° | 5752.8 | 4299.8 | 2397.4 | 2020.5 | 2056.8 | 2120.4 | 2165.8 | 2197.6 | 2320.2 | 2438.2 | 2442.8 |
| 40°   | 5802.7 | 4363.4 | 2429.1 | 1966.0 | 1934.2 | 1997.8 | 2020.5 | 2038.7 | 2102.2 | 2179.4 | 2179.4 |
| 42.5° | 5770.9 | 4408.8 | 2501.8 | 1916.1 | 1784.4 | 1857.0 | 1866.1 | 1861.6 | 1866.1 | 1870.7 | 1866.1 |
| 45°   | 5689.2 | 4363.4 | 2501.8 | 1838.9 | 1625.5 | 1702.7 | 1698.1 | 1675.4 | 1639.1 | 1543.8 | 1530.1 |
| 47.5° | 5671.0 | 4336.1 | 2406.4 | 1711.7 | 1466.6 | 1530.1 | 1539.2 | 1493.8 | 1389.4 | 1289.5 | 1257.7 |
| 50°   | 5748.2 | 4386.1 | 2256.6 | 1557.4 | 1330.4 | 1384.8 | 1407.5 | 1330.4 | 1212.3 | 1107.9 | 1089.7 |
| 52.5° | 5861.7 | 4449.6 | 2038.7 | 1389.4 | 1216.8 | 1271.3 | 1298.6 | 1212.3 | 1089.7 | 1008.0 | 998.9  |
| 55°   | 5848.1 | 4449.6 | 1793.5 | 1235.0 | 1130.6 | 1171.4 | 1216.8 | 1126.0 | 1030.7 | 985.3  | 980.7  |
| 57.5° | 5553.0 | 4281.6 | 1611.9 | 1126.0 | 1048.8 | 1085.2 | 1144.2 | 1057.9 | 967.1  | 976.2  | 989.8  |
| 60°   | 4976.3 | 3845.8 | 1475.6 | 1053.4 | 976.2  | 1012.5 | 1076.1 | 976.2  | 858.1  | 826.4  | 826.4  |
| 62.5° | 4100.0 | 3169.2 | 1366.7 | 980.7  | 908.1  | 953.5  | 985.3  | 853.6  | 776.4  | 740.1  | 740.1  |
| 65°   | 3073.9 | 2451.8 | 1253.2 | 921.7  | 849.1  | 899.0  | 862.7  | 799.1  | 721.9  | 694.7  | 699.2  |
| 67°   | 2279.3 | 1902.4 | 1157.8 | 871.8  | 812.7  | 835.4  | 808.2  | 762.8  | 685.6  | 662.9  | 685.6  |
| 67.5° | 2047.7 | 1807.1 | 1135.1 | 858.1  | 803.7  | 821.8  | 794.6  | 758.3  | 676.5  | 653.8  | 676.5  |
| 70°   | 1407.5 | 1389.4 | 1012.5 | 794.6  | 753.7  | 735.6  | 749.2  | 703.8  | 635.7  | 626.6  | 649.3  |
| 72.5° | 1071.5 | 1107.9 | 908.1  | 740.1  | 699.2  | 676.5  | 708.3  | 662.9  | 594.8  | 608.4  | 631.1  |
| 75°   | 840.0  | 894.5  | 812.7  | 662.9  | 635.7  | 640.2  | 703.8  | 685.6  | 631.1  | 644.7  | 649.3  |
| 77.5° | 622.0  | 721.9  | 694.7  | 576.6  | 553.9  | 617.5  | 794.6  | 849.1  | 753.7  | 731.0  | 699.2  |
| 80°   | 454.0  | 517.6  | 585.7  | 476.7  | 463.1  | 594.8  | 980.7  | 1085.2 | 930.8  | 840.0  | 817.3  |
| 82.5° | 336.0  | 363.2  | 481.3  | 381.4  | 336.0  | 531.2  | 1089.7 | 1275.9 | 1107.9 | 935.3  | 908.1  |
| 85°   | 240.6  | 281.5  | 381.4  | 281.5  | 222.5  | 435.9  | 1067.0 | 1248.6 | 1098.8 | 885.4  | 862.7  |
| 87.5° | 86.3   | 122.6  | 163.5  | 127.1  | 113.5  | 299.7  | 880.8  | 899.0  | 685.6  | 313.3  | 317.8  |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



LM-79-08: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

McGRAW-EDISON

Report Number: SP1-2106-271-3

Luminaire Tested: GFLD-SA1-A-935-U-WR-X-BK

Test Date: 06/15/2021

**Test Information**

Test Method: LM-79-08  
 Report Number: SP1-2106-271-3  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1  
 Measurement Geometry: 4π  
 Issue Date: 06/15/2021  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: MCGRAW-EDISON  
 Catalog Number: **GFLD-SA1-A-935-U-WR-X-BK**  
 Description: MCGRAW EDISON

N6, BLACK

**Spectral Parameters**

CCT (K): 3364  
 CIE u': 0.2376  
 CIE v': 0.5188  
 Duv: 0.0036  
 CIE x: 0.4173  
 CIE y: 0.4050  
 CIE z: 0.1777  
 Peak Wavelength (nm): 622  
 Dominant Wavelength (nm): 580  
 Purity: 46.9  
 R<sub>f</sub>: 92.6  
 R<sub>g</sub>: 98.3

CRI (Ra): 92.0  
 R1: 91.7  
 R2: 94.0  
 R3: 95.5  
 R4: 93.0  
 R5: 90.9  
 R6: 92.2  
 R7: 94.8  
 R8: 84.1  
 R9: 59.7  
 R10: 85.2  
 R11: 92.8  
 R12: 78.2  
 R13: 92.0  
 R14: 96.9

**Test Conditions**  
 Stabilization Time: 76M  
 Operation Time: 12H  
 Room Temperature (°C) / RH%: 24.8/44%  
 Sphere Temperature (°C): 24.9



REPORT NUMBER: SP1-2106-271-3

| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | 76INCH SPHERE IN0058  | 1/31/2021        | 7/31/2021            |
| Power Meter                    | XITRON 2801 IN0071    | 12/1/2020        | 12/1/2021            |
| AC Power Source                | CHROMA 61603 IN0063   | 12/1/2020        | 12/1/2021            |
| DC Power Source                | AGILENT E3634A IN0208 | 12/1/2020        | 12/1/2021            |
| Sphere Thermometer             | ONSET IN0085          | 12/1/2020        | 12/1/2021            |
| Room Thermometer               | ONSET IN0046          | 12/1/2020        | 12/1/2021            |

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**CIE 1931 Chromaticity Diagram**



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



Point lies inside the ANSI 3500K 4-step quadrangle

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**Photopic Flux vs. Wavelength**



#####

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360    | 792           | NR            | 490    | 14205         | NR            | 620    | 36151         | NR            | 750    | 3427          | NR            | 880    | 712           | NR            |
| 365    | 640           | NR            | 495    | 15647         | NR            | 625    | 36077         | NR            | 755    | 3047          | NR            | 885    | 942           | NR            |
| 370    | 630           | NR            | 500    | 17088         | NR            | 630    | 35451         | NR            | 760    | 2790          | NR            | 890    | 952           | NR            |
| 375    | 684           | NR            | 505    | 18475         | NR            | 635    | 34417         | NR            | 765    | 2433          | NR            | 895    | 764           | NR            |
| 380    | 731           | NR            | 510    | 19780         | NR            | 640    | 33166         | NR            | 770    | 2178          | NR            | 900    | 743           | NR            |
| 385    | 664           | NR            | 515    | 21055         | NR            | 645    | 32124         | NR            | 775    | 1893          | NR            | 905    | 776           | NR            |
| 390    | 595           | NR            | 520    | 22268         | NR            | 650    | 30559         | NR            | 780    | 1724          | NR            | 910    | 659           | NR            |
| 395    | 520           | NR            | 525    | 23497         | NR            | 655    | 28656         | NR            | 785    | 1549          | NR            | 915    | 701           | NR            |
| 400    | 491           | NR            | 530    | 24653         | NR            | 660    | 27033         | NR            | 790    | 1451          | NR            | 920    | 728           | NR            |
| 405    | 489           | NR            | 535    | 25661         | NR            | 665    | 25030         | NR            | 795    | 1317          | NR            | 925    | 793           | NR            |
| 410    | 585           | NR            | 540    | 26289         | NR            | 670    | 22820         | NR            | 800    | 1124          | NR            | 930    | 877           | NR            |
| 415    | 826           | NR            | 545    | 26945         | NR            | 675    | 20678         | NR            | 805    | 1116          | NR            | 935    | 923           | NR            |
| 420    | 1336          | NR            | 550    | 27713         | NR            | 680    | 18748         | NR            | 810    | 1105          | NR            | 940    | 1001          | NR            |
| 425    | 2406          | NR            | 555    | 28230         | NR            | 685    | 16904         | NR            | 815    | 1073          | NR            | 945    | 604           | NR            |
| 430    | 4355          | NR            | 560    | 28678         | NR            | 690    | 15203         | NR            | 820    | 977           | NR            | 950    | 424           | NR            |
| 435    | 7911          | NR            | 565    | 29242         | NR            | 695    | 13356         | NR            | 825    | 882           | NR            | 955    | 550           | NR            |
| 440    | 13821         | NR            | 570    | 29806         | NR            | 700    | 11948         | NR            | 830    | 875           | NR            | 960    | 709           | NR            |
| 445    | 19836         | NR            | 575    | 30322         | NR            | 705    | 10482         | NR            | 835    | 944           | NR            | 965    | 755           | NR            |
| 450    | 19902         | NR            | 580    | 31125         | NR            | 710    | 9351          | NR            | 840    | 956           | NR            | 970    | 426           | NR            |
| 455    | 15697         | NR            | 585    | 31838         | NR            | 715    | 8217          | NR            | 845    | 875           | NR            | 975    | 556           | NR            |
| 460    | 13589         | NR            | 590    | 32845         | NR            | 720    | 7313          | NR            | 850    | 801           | NR            | 980    | 1040          | NR            |
| 465    | 11857         | NR            | 595    | 33487         | NR            | 725    | 6460          | NR            | 855    | 890           | NR            | 985    | 833           | NR            |
| 470    | 10336         | NR            | 600    | 34359         | NR            | 730    | 5680          | NR            | 860    | 706           | NR            | 990    | 964           | NR            |
| 475    | 10504         | NR            | 605    | 35281         | NR            | 735    | 4904          | NR            | 865    | 902           | NR            | 995    | 953           | NR            |
| 480    | 11526         | NR            | 610    | 35679         | NR            | 740    | 4372          | NR            | 870    | 879           | NR            | 1000   | 950           | NR            |
| 485    | 12831         | NR            | 615    | 36113         | NR            | 745    | 3858          | NR            | 875    | 769           | NR            |        |               |               |

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**Scotopic Flux vs. Wavelength**



**Scotopic Lumens: 3109.5**

**S/P: 1.54**

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360    | 792           | NR            | 490    | 14205         | NR            | 620    | 36151         | NR            | 750    | 3427          | NR            | 880    | 712           | NR            |
| 365    | 640           | NR            | 495    | 15647         | NR            | 625    | 36077         | NR            | 755    | 3047          | NR            | 885    | 942           | NR            |
| 370    | 630           | NR            | 500    | 17088         | NR            | 630    | 35451         | NR            | 760    | 2790          | NR            | 890    | 952           | NR            |
| 375    | 684           | NR            | 505    | 18475         | NR            | 635    | 34417         | NR            | 765    | 2433          | NR            | 895    | 764           | NR            |
| 380    | 731           | NR            | 510    | 19780         | NR            | 640    | 33166         | NR            | 770    | 2178          | NR            | 900    | 743           | NR            |
| 385    | 664           | NR            | 515    | 21055         | NR            | 645    | 32124         | NR            | 775    | 1893          | NR            | 905    | 776           | NR            |
| 390    | 595           | NR            | 520    | 22268         | NR            | 650    | 30559         | NR            | 780    | 1724          | NR            | 910    | 659           | NR            |
| 395    | 520           | NR            | 525    | 23497         | NR            | 655    | 28656         | NR            | 785    | 1549          | NR            | 915    | 701           | NR            |
| 400    | 491           | NR            | 530    | 24653         | NR            | 660    | 27033         | NR            | 790    | 1451          | NR            | 920    | 728           | NR            |
| 405    | 489           | NR            | 535    | 25661         | NR            | 665    | 25030         | NR            | 795    | 1317          | NR            | 925    | 793           | NR            |
| 410    | 585           | NR            | 540    | 26289         | NR            | 670    | 22820         | NR            | 800    | 1124          | NR            | 930    | 877           | NR            |
| 415    | 826           | NR            | 545    | 26945         | NR            | 675    | 20678         | NR            | 805    | 1116          | NR            | 935    | 923           | NR            |
| 420    | 1336          | NR            | 550    | 27713         | NR            | 680    | 18748         | NR            | 810    | 1105          | NR            | 940    | 1001          | NR            |
| 425    | 2406          | NR            | 555    | 28230         | NR            | 685    | 16904         | NR            | 815    | 1073          | NR            | 945    | 604           | NR            |
| 430    | 4355          | NR            | 560    | 28678         | NR            | 690    | 15203         | NR            | 820    | 977           | NR            | 950    | 424           | NR            |
| 435    | 7911          | NR            | 565    | 29242         | NR            | 695    | 13356         | NR            | 825    | 882           | NR            | 955    | 550           | NR            |
| 440    | 13821         | NR            | 570    | 29806         | NR            | 700    | 11948         | NR            | 830    | 875           | NR            | 960    | 709           | NR            |
| 445    | 19836         | NR            | 575    | 30322         | NR            | 705    | 10482         | NR            | 835    | 944           | NR            | 965    | 755           | NR            |
| 450    | 19902         | NR            | 580    | 31125         | NR            | 710    | 9351          | NR            | 840    | 956           | NR            | 970    | 426           | NR            |
| 455    | 15697         | NR            | 585    | 31838         | NR            | 715    | 8217          | NR            | 845    | 875           | NR            | 975    | 556           | NR            |
| 460    | 13589         | NR            | 590    | 32845         | NR            | 720    | 7313          | NR            | 850    | 801           | NR            | 980    | 1040          | NR            |
| 465    | 11857         | NR            | 595    | 33487         | NR            | 725    | 6460          | NR            | 855    | 890           | NR            | 985    | 833           | NR            |
| 470    | 10336         | NR            | 600    | 34359         | NR            | 730    | 5680          | NR            | 860    | 706           | NR            | 990    | 964           | NR            |
| 475    | 10504         | NR            | 605    | 35281         | NR            | 735    | 4904          | NR            | 865    | 902           | NR            | 995    | 953           | NR            |
| 480    | 11526         | NR            | 610    | 35679         | NR            | 740    | 4372          | NR            | 870    | 879           | NR            | 1000   | 950           | NR            |
| 485    | 12831         | NR            | 615    | 36113         | NR            | 745    | 3858          | NR            | 875    | 769           | NR            |        |               |               |

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**Melanopic Flux vs. Wavelength**



**Melanopic Lumens: 1210.8 S/P: 0.6**

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360    | 792           | NR            | 490    | 14205         | NR            | 620    | 36151         | NR            | 750    | 3427          | NR            | 880    | 712           | NR            |
| 365    | 640           | NR            | 495    | 15647         | NR            | 625    | 36077         | NR            | 755    | 3047          | NR            | 885    | 942           | NR            |
| 370    | 630           | NR            | 500    | 17088         | NR            | 630    | 35451         | NR            | 760    | 2790          | NR            | 890    | 952           | NR            |
| 375    | 684           | NR            | 505    | 18475         | NR            | 635    | 34417         | NR            | 765    | 2433          | NR            | 895    | 764           | NR            |
| 380    | 731           | NR            | 510    | 19780         | NR            | 640    | 33166         | NR            | 770    | 2178          | NR            | 900    | 743           | NR            |
| 385    | 664           | NR            | 515    | 21055         | NR            | 645    | 32124         | NR            | 775    | 1893          | NR            | 905    | 776           | NR            |
| 390    | 595           | NR            | 520    | 22268         | NR            | 650    | 30559         | NR            | 780    | 1724          | NR            | 910    | 659           | NR            |
| 395    | 520           | NR            | 525    | 23497         | NR            | 655    | 28656         | NR            | 785    | 1549          | NR            | 915    | 701           | NR            |
| 400    | 491           | NR            | 530    | 24653         | NR            | 660    | 27033         | NR            | 790    | 1451          | NR            | 920    | 728           | NR            |
| 405    | 489           | NR            | 535    | 25661         | NR            | 665    | 25030         | NR            | 795    | 1317          | NR            | 925    | 793           | NR            |
| 410    | 585           | NR            | 540    | 26289         | NR            | 670    | 22820         | NR            | 800    | 1124          | NR            | 930    | 877           | NR            |
| 415    | 826           | NR            | 545    | 26945         | NR            | 675    | 20678         | NR            | 805    | 1116          | NR            | 935    | 923           | NR            |
| 420    | 1336          | NR            | 550    | 27713         | NR            | 680    | 18748         | NR            | 810    | 1105          | NR            | 940    | 1001          | NR            |
| 425    | 2406          | NR            | 555    | 28230         | NR            | 685    | 16904         | NR            | 815    | 1073          | NR            | 945    | 604           | NR            |
| 430    | 4355          | NR            | 560    | 28678         | NR            | 690    | 15203         | NR            | 820    | 977           | NR            | 950    | 424           | NR            |
| 435    | 7911          | NR            | 565    | 29242         | NR            | 695    | 13356         | NR            | 825    | 882           | NR            | 955    | 550           | NR            |
| 440    | 13821         | NR            | 570    | 29806         | NR            | 700    | 11948         | NR            | 830    | 875           | NR            | 960    | 709           | NR            |
| 445    | 19836         | NR            | 575    | 30322         | NR            | 705    | 10482         | NR            | 835    | 944           | NR            | 965    | 755           | NR            |
| 450    | 19902         | NR            | 580    | 31125         | NR            | 710    | 9351          | NR            | 840    | 956           | NR            | 970    | 426           | NR            |
| 455    | 15697         | NR            | 585    | 31838         | NR            | 715    | 8217          | NR            | 845    | 875           | NR            | 975    | 556           | NR            |
| 460    | 13589         | NR            | 590    | 32845         | NR            | 720    | 7313          | NR            | 850    | 801           | NR            | 980    | 1040          | NR            |
| 465    | 11857         | NR            | 595    | 33487         | NR            | 725    | 6460          | NR            | 855    | 890           | NR            | 985    | 833           | NR            |
| 470    | 10336         | NR            | 600    | 34359         | NR            | 730    | 5680          | NR            | 860    | 706           | NR            | 990    | 964           | NR            |
| 475    | 10504         | NR            | 605    | 35281         | NR            | 735    | 4904          | NR            | 865    | 902           | NR            | 995    | 953           | NR            |
| 480    | 11526         | NR            | 610    | 35679         | NR            | 740    | 4372          | NR            | 870    | 879           | NR            | 1000   | 950           | NR            |
| 485    | 12831         | NR            | 615    | 36113         | NR            | 745    | 3858          | NR            | 875    | 769           | NR            |        |               |               |

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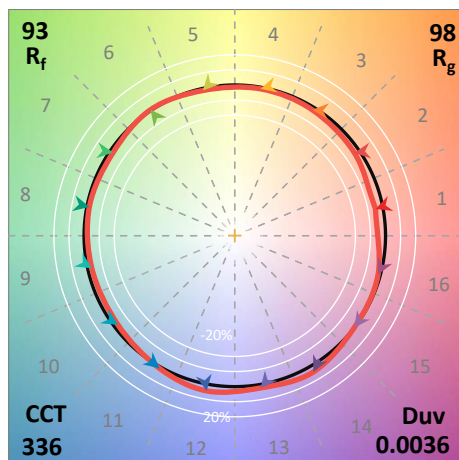
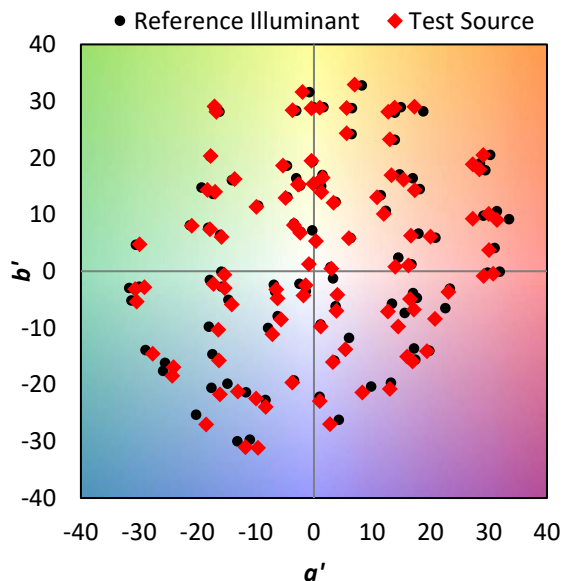
TM-30-18

**Summary**

$R_f = 92.6$   
 $R_g = 98.3$   
 CIE  $R_a = 92.0$   
 $R_9 = 59.7$



**Color Vector Graphics**



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 94 | CES51 = 97 | CES76 = 88 |
| CES02 = 62 | CES27 = 93 | CES52 = 98 | CES77 = 91 |
| CES03 = 31 | CES28 = 96 | CES53 = 96 | CES78 = 87 |
| CES04 = 70 | CES29 = 96 | CES54 = 95 | CES79 = 96 |
| CES05 = 50 | CES30 = 97 | CES55 = 94 | CES80 = 95 |
| CES06 = 51 | CES31 = 96 | CES56 = 94 | CES81 = 88 |
| CES07 = 42 | CES32 = 92 | CES57 = 93 | CES82 = 98 |
| CES08 = 41 | CES33 = 98 | CES58 = 94 | CES83 = 97 |
| CES09 = 29 | CES34 = 95 | CES59 = 96 | CES84 = 95 |
| CES10 = 75 | CES35 = 97 | CES60 = 94 | CES85 = 86 |
| CES11 = 58 | CES36 = 87 | CES61 = 93 | CES86 = 87 |
| CES12 = 64 | CES37 = 95 | CES62 = 91 | CES87 = 92 |
| CES13 = 43 | CES38 = 92 | CES63 = 93 | CES88 = 96 |
| CES14 = 74 | CES39 = 99 | CES64 = 91 | CES89 = 87 |
| CES15 = 71 | CES40 = 98 | CES65 = 89 | CES90 = 96 |
| CES16 = 48 | CES41 = 98 | CES66 = 89 | CES91 = 80 |
| CES17 = 49 | CES42 = 96 | CES67 = 88 | CES92 = 82 |
| CES18 = 56 | CES43 = 97 | CES68 = 90 | CES93 = 89 |
| CES19 = 71 | CES44 = 99 | CES69 = 91 | CES94 = 82 |
| CES20 = 66 | CES45 = 98 | CES70 = 88 | CES95 = 85 |
| CES21 = 86 | CES46 = 97 | CES71 = 85 | CES96 = 92 |
| CES22 = 78 | CES47 = 97 | CES72 = 95 | CES97 = 96 |
| CES23 = 91 | CES48 = 93 | CES73 = 84 | CES98 = 94 |
| CES24 = 90 | CES49 = 97 | CES74 = 94 | CES99 = 91 |
| CES25 = 71 | CES50 = 98 | CES75 = 86 |            |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)