

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: STREETWORKS

Report Number: P1065714

Luminaire Tested: **NVN-SA2B-740-U-T3BC**

Issue Date: 08/07/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1065714  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 08/07/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: NVN-SA2B-740-U-T3BC  
Description: Navion AREA AND ROADWAY LUMINAIRE 800mA 2xLight Square PACKAGE  
70CRI 4000K FIXTURE w/ TYPE III ANGLED BACKLIGHT CONTROL  
Light Source: (28) 4000K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 9414 lumens  
Efficiency: N/A  
Efficacy: 129.3 lumens/watt  
Luminous Opening: Rectangular (W 0.5' x L: 1' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B0 - U0 - G2

Input Watts (W): 72.8  
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

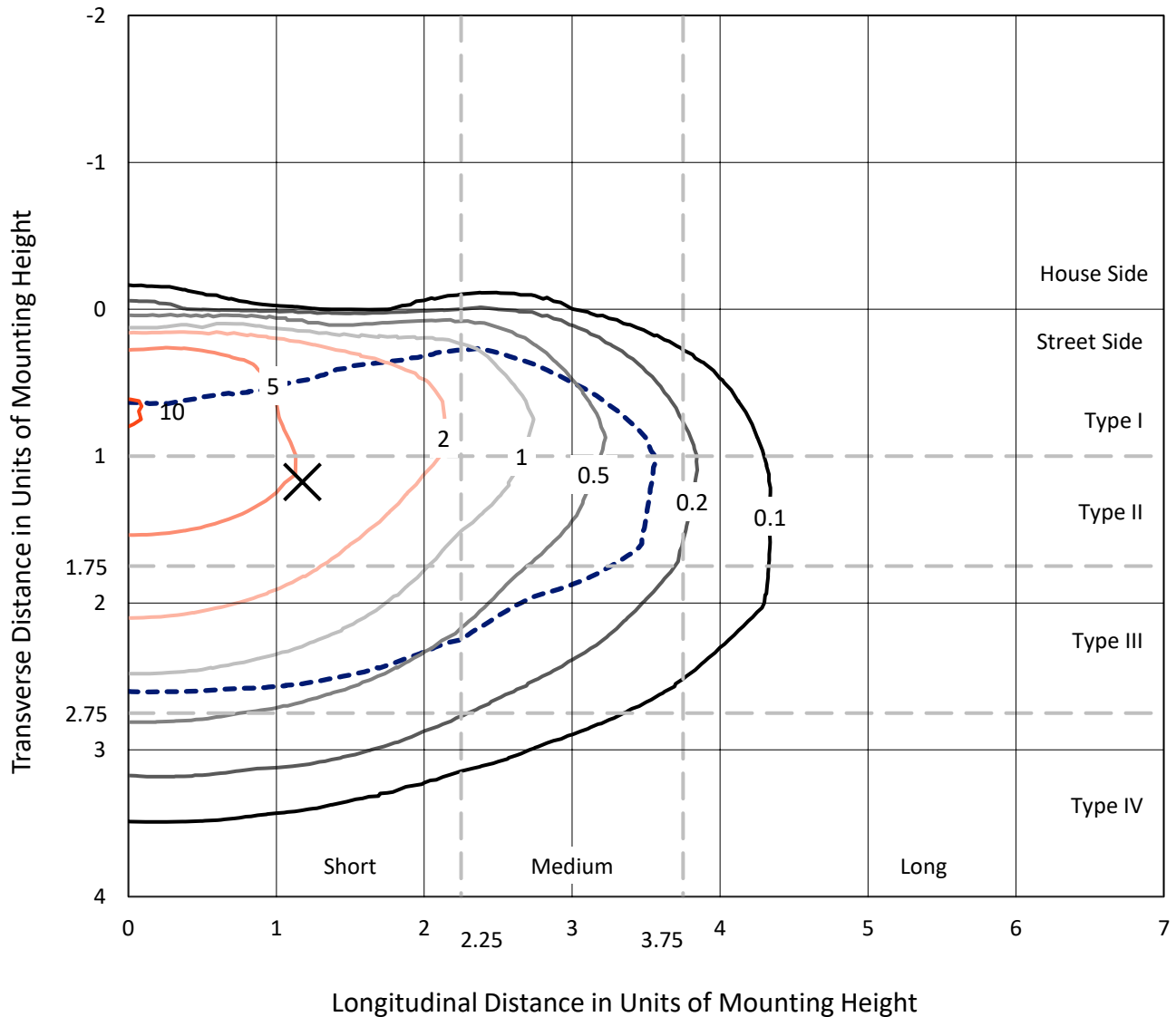


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## Iso-Footcandle Lines of Horizontal Illumination

✕ Max cd  
 - - - 1/2 Max cd

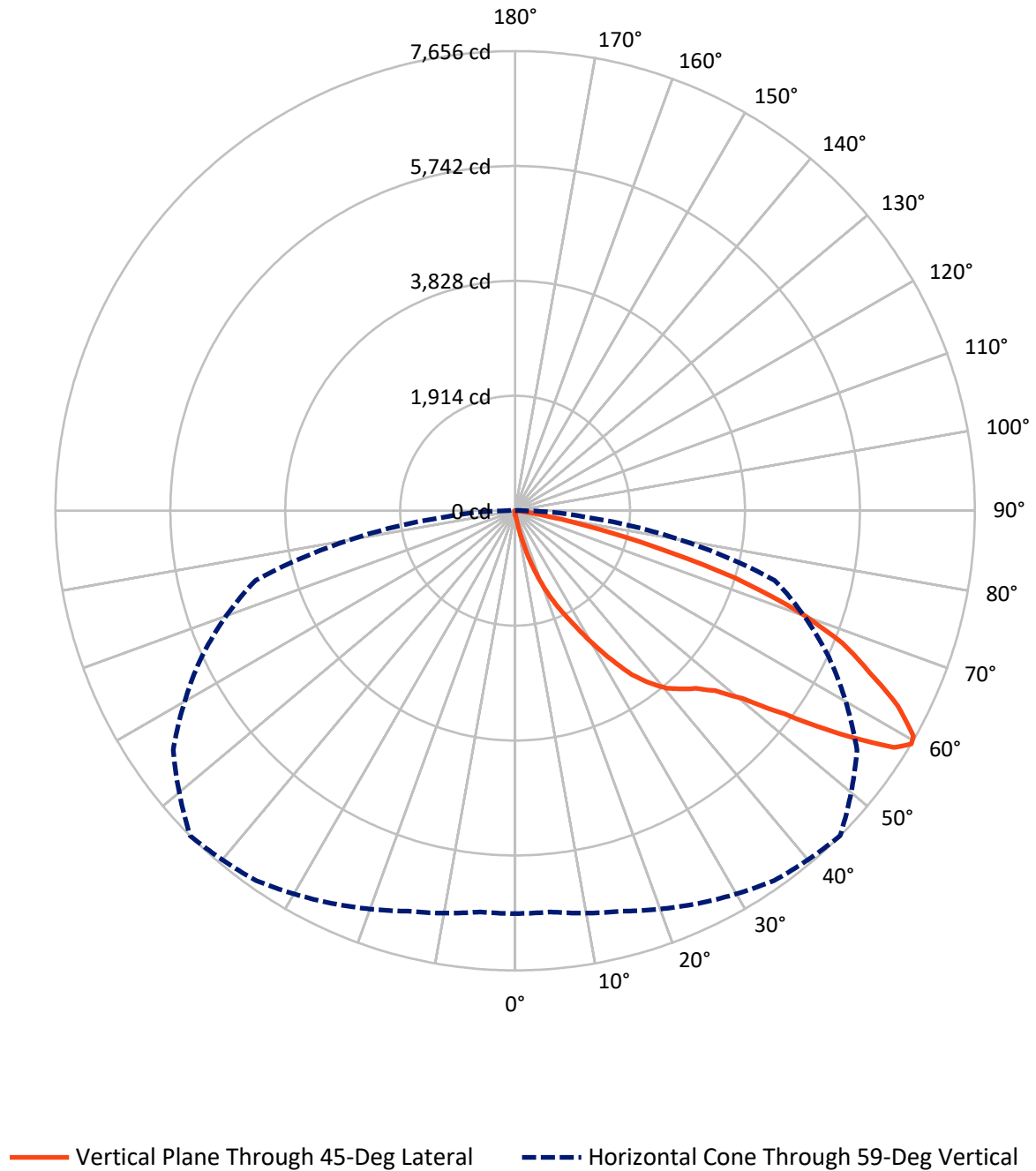


Based on 15 foot mounting height. Maximum calculated value = 10.3 fc  
 Type III - Short - N/A

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## Luminous Intensity Polar Plot



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CATALOG NUMBER: NVN-SA2B-740-U-T3BC

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 33.4     | 0.0    | 33.4   |
|                    | % Fixture | 0.4      | 0.0    | 0.4    |
| <b>Street Side</b> | Lumens    | 9380.6   | 0.0    | 9380.6 |
|                    | % Fixture | 99.6     | 0.0    | 99.6   |
| <b>Total</b>       | Lumens    | 9414.0   | 0.0    | 9414.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 8.8    | 0.1       |
| 10°-20°   | 104.0  | 1.1       |
| 20°-30°   | 373.9  | 4.0       |
| 30°-40°   | 868.8  | 9.2       |
| 40°-50°   | 1480.8 | 15.7      |
| 50°-60°   | 2439.9 | 25.9      |
| 60°-70°   | 2821.1 | 30.0      |
| 70°-80°   | 1212.0 | 12.9      |
| 80°-90°   | 104.7  | 1.1       |
| 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°    | 9414.0 | 100.0     |
| 0°-180°   | 9414.0 | 100.0     |



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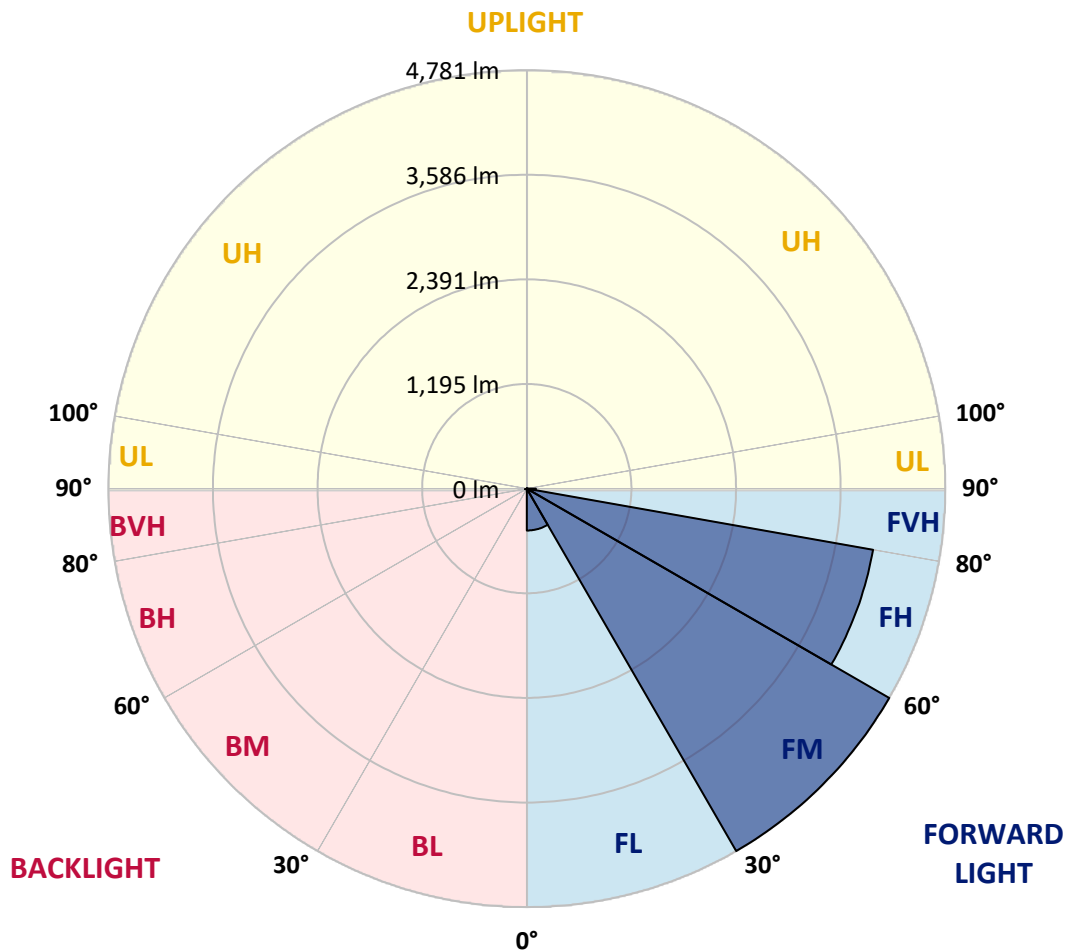
CATALOG NUMBER: NVN-SA2B-740-U-T3BC

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 478.4  | 5.1       |                         |      |         |
| FM   | (30°-60°)   | 4781.4 | 50.8      |                         |      |         |
| FH   | (60°-80°)   | 4017.4 | 42.7      |                         |      | G2/5000 |
| FVH  | (80°-90°)   | 103.4  | 1.1       |                         |      | G2/225  |
| BL   | (0°-30°)    | 8.2    | 0.1       | B0/110                  |      |         |
| BM   | (30°-60°)   | 8.1    | 0.1       | B0/220                  |      |         |
| BH   | (60°-80°)   | 15.7   | 0.2       | B0/110                  |      | G0/110  |
| BVH  | (80°-90°)   | 1.4    | 0.0       |                         |      | G0/10   |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B0-U0-G2**

Type III Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 44°    | 45°    | 55°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 59.5   | 59.5   | 59.5   | 59.5   | 59.5   | 59.5   | 59.5   | 59.5   | 59.5   | 59.5   | 59.5   |
| 2.5°  | 77.2   | 77.2   | 75.3   | 72.8   | 72.2   | 70.3   | 70.3   | 68.4   | 65.8   | 63.9   | 61.4   |
| 5°    | 112.0  | 111.4  | 106.3  | 100.0  | 91.8   | 86.7   | 86.7   | 79.8   | 73.4   | 67.7   | 62.7   |
| 7.5°  | 245.0  | 239.3  | 220.9  | 190.5  | 150.7  | 124.1  | 122.2  | 99.4   | 84.2   | 72.8   | 63.3   |
| 10°   | 562.1  | 542.5  | 516.5  | 443.7  | 327.9  | 229.1  | 224.7  | 145.0  | 100.6  | 78.5   | 64.6   |
| 12.5° | 921.0  | 936.8  | 884.9  | 770.4  | 634.9  | 472.2  | 440.6  | 244.3  | 132.9  | 86.1   | 65.8   |
| 15°   | 1247.6 | 1243.8 | 1214.7 | 1121.0 | 964.7  | 748.2  | 728.6  | 424.7  | 190.5  | 98.1   | 67.1   |
| 17.5° | 1492.0 | 1487.6 | 1459.7 | 1399.6 | 1279.3 | 1062.8 | 1045.7 | 677.3  | 298.8  | 115.2  | 68.4   |
| 20°   | 1749.6 | 1743.9 | 1704.7 | 1656.6 | 1551.5 | 1367.3 | 1347.0 | 959.6  | 467.8  | 143.1  | 68.4   |
| 22.5° | 2058.5 | 2047.8 | 2006.0 | 1924.3 | 1813.5 | 1653.4 | 1635.0 | 1248.3 | 677.3  | 188.6  | 71.5   |
| 25°   | 2432.0 | 2413.6 | 2356.0 | 2282.6 | 2149.0 | 1936.4 | 1916.7 | 1569.8 | 929.9  | 257.6  | 74.7   |
| 27.5° | 2858.0 | 2861.2 | 2783.3 | 2659.2 | 2480.1 | 2263.0 | 2226.3 | 1857.9 | 1191.3 | 356.4  | 78.5   |
| 30°   | 3363.8 | 3332.1 | 3222.6 | 3078.3 | 2904.2 | 2627.6 | 2592.1 | 2144.6 | 1485.0 | 502.0  | 84.8   |
| 32.5° | 3837.3 | 3803.1 | 3655.6 | 3473.9 | 3287.2 | 2995.4 | 2966.2 | 2466.8 | 1752.1 | 674.1  | 96.2   |
| 35°   | 4243.6 | 4219.6 | 4013.2 | 3791.7 | 3625.8 | 3365.0 | 3356.2 | 2826.4 | 2066.1 | 859.6  | 108.9  |
| 37.5° | 4601.3 | 4557.6 | 4292.4 | 4062.6 | 3894.2 | 3660.6 | 3641.7 | 3155.5 | 2368.7 | 1074.8 | 127.9  |
| 40°   | 4906.4 | 4882.3 | 4558.9 | 4256.9 | 4120.2 | 3911.3 | 3887.3 | 3444.2 | 2681.4 | 1324.9 | 151.3  |
| 42.5° | 5233.0 | 5201.4 | 4887.4 | 4548.7 | 4296.8 | 4073.4 | 4057.5 | 3682.2 | 2959.9 | 1599.6 | 186.1  |
| 45°   | 5602.1 | 5543.2 | 5267.8 | 4964.0 | 4581.0 | 4241.1 | 4223.4 | 3894.2 | 3245.4 | 1894.6 | 228.5  |
| 47.5° | 5996.4 | 5945.2 | 5722.3 | 5509.0 | 5068.4 | 4517.7 | 4479.8 | 4074.6 | 3529.0 | 2235.1 | 282.3  |
| 50°   | 6397.7 | 6399.0 | 6231.9 | 6129.4 | 5664.1 | 4967.2 | 4913.4 | 4339.9 | 3827.1 | 2599.7 | 362.1  |
| 52.5° | 6864.9 | 6876.9 | 6874.4 | 6798.4 | 6437.6 | 5702.1 | 5629.9 | 4742.4 | 4173.4 | 3025.1 | 472.2  |
| 55°   | 7060.5 | 7082.0 | 7221.9 | 7390.3 | 7292.2 | 6633.9 | 6556.6 | 5436.9 | 4632.3 | 3499.2 | 635.5  |
| 57.5° | 6900.4 | 6924.4 | 7117.5 | 7412.4 | 7637.8 | 7449.8 | 7440.9 | 6340.8 | 5236.8 | 4074.0 | 902.7  |
| 59°   | 6709.8 | 6706.7 | 6904.8 | 7217.5 | 7521.3 | 7643.5 | 7656.2 | 6952.3 | 5763.5 | 4477.2 | 1133.1 |
| 60°   | 6583.2 | 6585.7 | 6717.4 | 7038.3 | 7361.2 | 7573.2 | 7622.6 | 7312.4 | 6071.1 | 4767.1 | 1330.6 |
| 62.5° | 6094.5 | 6123.7 | 6228.1 | 6526.2 | 6832.6 | 7069.4 | 7153.6 | 7633.4 | 6951.6 | 5452.0 | 2017.4 |
| 65°   | 5563.5 | 5565.4 | 5714.1 | 5969.2 | 6262.9 | 6429.4 | 6482.6 | 7133.9 | 7539.7 | 6149.6 | 2918.1 |
| 67.5° | 4615.8 | 4654.5 | 4823.5 | 5236.8 | 5624.9 | 5835.6 | 5876.2 | 6209.7 | 7296.0 | 6604.1 | 3369.5 |
| 70°   | 3230.2 | 3280.8 | 3522.0 | 4058.2 | 4636.1 | 4982.4 | 4979.8 | 5162.1 | 6421.2 | 6401.5 | 2856.7 |
| 72.5° | 1612.9 | 1700.2 | 1897.1 | 2471.2 | 3171.3 | 3715.1 | 3829.7 | 4152.5 | 5158.3 | 5317.2 | 2131.3 |
| 75°   | 712.8  | 717.8  | 829.9  | 1119.1 | 1576.2 | 2266.8 | 2369.3 | 3296.0 | 3957.5 | 3695.5 | 1539.5 |
| 77.5° | 414.6  | 418.4  | 438.7  | 502.6  | 638.7  | 1110.9 | 1226.1 | 2161.7 | 2796.6 | 2147.8 | 1003.9 |
| 80°   | 150.7  | 154.5  | 153.8  | 190.5  | 279.8  | 437.4  | 487.4  | 1047.6 | 1865.5 | 1131.2 | 526.0  |
| 82.5° | 92.4   | 92.4   | 89.3   | 89.9   | 101.9  | 167.7  | 183.6  | 446.3  | 908.4  | 557.0  | 150.7  |
| 85°   | 45.6   | 48.1   | 51.3   | 57.6   | 68.4   | 82.9   | 88.0   | 127.9  | 305.7  | 134.8  | 36.1   |
| 87.5° | 27.2   | 27.9   | 30.4   | 36.7   | 45.6   | 59.5   | 63.3   | 86.7   | 109.5  | 90.5   | 8.9    |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

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**CANDELA DISTRIBUTION (continued):**

|       | 90°   | 95°  | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|-------|------|------|------|------|------|------|------|------|------|------|
| 0°    | 59.5  | 59.5 | 59.5 | 59.5 | 59.5 | 59.5 | 59.5 | 59.5 | 59.5 | 59.5 | 59.5 |
| 2.5°  | 60.1  | 59.5 | 56.3 | 53.8 | 51.3 | 48.7 | 46.8 | 44.9 | 44.9 | 45.6 | 44.9 |
| 5°    | 60.1  | 57.6 | 52.5 | 48.1 | 44.3 | 41.1 | 38.0 | 35.4 | 34.8 | 34.8 | 35.4 |
| 7.5°  | 59.5  | 56.3 | 49.4 | 43.7 | 38.6 | 34.2 | 31.0 | 27.9 | 27.2 | 27.9 | 27.2 |
| 10°   | 58.9  | 55.1 | 46.8 | 39.9 | 32.9 | 28.5 | 24.1 | 20.9 | 20.9 | 20.9 | 21.5 |
| 12.5° | 58.9  | 53.2 | 44.3 | 36.1 | 28.5 | 23.4 | 19.0 | 15.8 | 15.2 | 15.2 | 15.2 |
| 15°   | 58.2  | 51.9 | 41.8 | 31.7 | 24.1 | 17.7 | 13.9 | 10.8 | 10.8 | 10.8 | 10.8 |
| 17.5° | 57.0  | 50.0 | 38.6 | 27.9 | 19.0 | 13.3 | 9.5  | 6.3  | 6.3  | 7.6  | 7.6  |
| 20°   | 55.7  | 48.1 | 34.8 | 22.8 | 15.8 | 10.1 | 6.3  | 3.8  | 3.8  | 5.7  | 6.3  |
| 22.5° | 56.3  | 48.1 | 32.3 | 20.3 | 12.7 | 7.6  | 5.1  | 3.2  | 2.5  | 4.4  | 5.7  |
| 25°   | 57.0  | 46.8 | 29.1 | 17.7 | 9.5  | 5.7  | 3.8  | 1.3  | 0.6  | 1.3  | 1.9  |
| 27.5° | 57.0  | 45.6 | 25.3 | 13.9 | 7.0  | 4.4  | 1.9  | 0.0  | 0.0  | 0.0  | 0.0  |
| 30°   | 56.3  | 43.7 | 22.2 | 11.4 | 5.1  | 2.5  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  |
| 32.5° | 55.7  | 41.8 | 20.3 | 8.9  | 4.4  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 35°   | 56.3  | 39.2 | 17.7 | 7.0  | 2.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 1.3  |
| 37.5° | 58.2  | 36.7 | 15.2 | 5.7  | 1.9  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 40°   | 60.8  | 34.8 | 12.7 | 4.4  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 42.5° | 65.8  | 34.8 | 11.4 | 3.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 45°   | 72.2  | 34.8 | 9.5  | 2.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 47.5° | 80.4  | 35.4 | 8.2  | 2.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 50°   | 90.5  | 36.7 | 7.6  | 1.9  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 52.5° | 98.1  | 35.4 | 7.0  | 1.9  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 55°   | 111.4 | 34.2 | 6.3  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 57.5° | 129.1 | 32.3 | 6.3  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 59°   | 146.9 | 29.8 | 6.3  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 60°   | 167.1 | 28.5 | 5.7  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 62.5° | 276.0 | 25.3 | 5.1  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 65°   | 533.0 | 24.1 | 4.4  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 67.5° | 861.5 | 24.1 | 3.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 70°   | 905.8 | 24.1 | 2.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 72.5° | 602.6 | 19.6 | 1.9  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 75°   | 322.8 | 17.7 | 1.9  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 77.5° | 174.1 | 16.5 | 2.5  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 80°   | 76.6  | 12.0 | 3.2  | 1.9  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 82.5° | 30.4  | 8.2  | 3.8  | 3.2  | 2.5  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 85°   | 14.6  | 6.3  | 5.1  | 4.4  | 3.2  | 1.9  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 87.5° | 7.0   | 6.3  | 5.7  | 5.1  | 4.4  | 3.2  | 0.6  | 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  |

LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-1

Test Date: 10/09/2024

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

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

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-1  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 10/15/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: McGraw-Edison  
 Catalog Number: **GSS-SB1A-740-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI  
 4000K CCT 26 LEDS

### Spectral Parameters

|                           |          |           |      |      |       |
|---------------------------|----------|-----------|------|------|-------|
| CCT (K):                  | 3949     | CRI (Ra): | 70.7 |      |       |
| CIE u':                   | 0.2248   | R1:       | 68.0 | R9:  | -36.7 |
| CIE v':                   | 0.5053   | R2:       | 76.0 | R10: | 45.1  |
| Duv:                      | 0.0022   | R3:       | 84.3 | R11: | 70.7  |
| CIE x:                    | 0.3844   | R4:       | 72.0 | R12: | 47.1  |
| CIE y:                    | 0.3840   | R5:       | 68.6 | R13: | 68.5  |
| CIE z:                    | 0.2316   | R6:       | 68.3 | R14: | 91.1  |
| Peak Wavelength (nm):     | 440      | R7:       | 77.9 | R15: | 58.7  |
| Dominant Wavelength (nm): | 578      | R8:       | 50.3 |      |       |
| Purity:                   | 30.60026 |           |      |      |       |
| Rf:                       | 71.8     |           |      |      |       |
| Rg:                       | 96.5     |           |      |      |       |



### Test Conditions

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

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| 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           |

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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 4000K 4-step quadrangle

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### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

| λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 139                      | NR            | 620    | 607                      | NR            | 750    | 15                       | NR            | 880    | 0                        | NR            |
| 365    | 0                        | NR            | 495    | 198                      | NR            | 625    | 554                      | NR            | 755    | 13                       | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 267                      | NR            | 630    | 504                      | NR            | 760    | 11                       | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 343                      | NR            | 635    | 452                      | NR            | 765    | 10                       | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 410                      | NR            | 640    | 403                      | NR            | 770    | 8                        | NR            | 900    | 0                        | NR            |
| 385    | 2                        | NR            | 515    | 470                      | NR            | 645    | 357                      | NR            | 775    | 7                        | NR            | 905    | 0                        | NR            |
| 390    | 4                        | NR            | 520    | 516                      | NR            | 650    | 314                      | NR            | 780    | 6                        | NR            | 910    | 0                        | NR            |
| 395    | 7                        | NR            | 525    | 550                      | NR            | 655    | 275                      | NR            | 785    | 5                        | NR            | 915    | 0                        | NR            |
| 400    | 10                       | NR            | 530    | 578                      | NR            | 660    | 240                      | NR            | 790    | 5                        | NR            | 920    | 0                        | NR            |
| 405    | 17                       | NR            | 535    | 601                      | NR            | 665    | 208                      | NR            | 795    | 4                        | NR            | 925    | 0                        | NR            |
| 410    | 35                       | NR            | 540    | 620                      | NR            | 670    | 179                      | NR            | 800    | 4                        | NR            | 930    | 0                        | NR            |
| 415    | 70                       | NR            | 545    | 641                      | NR            | 675    | 155                      | NR            | 805    | 3                        | NR            | 935    | 0                        | NR            |
| 420    | 147                      | NR            | 550    | 664                      | NR            | 680    | 133                      | NR            | 810    | 3                        | NR            | 940    | 0                        | NR            |
| 425    | 285                      | NR            | 555    | 689                      | NR            | 685    | 114                      | NR            | 815    | 2                        | NR            | 945    | 0                        | NR            |
| 430    | 487                      | NR            | 560    | 715                      | NR            | 690    | 98                       | NR            | 820    | 2                        | NR            | 950    | 0                        | NR            |
| 435    | 787                      | NR            | 565    | 743                      | NR            | 695    | 84                       | NR            | 825    | 2                        | NR            | 955    | 0                        | NR            |
| 440    | 1000                     | NR            | 570    | 771                      | NR            | 700    | 72                       | NR            | 830    | 2                        | NR            | 960    | 0                        | NR            |
| 445    | 783                      | NR            | 575    | 794                      | NR            | 705    | 61                       | NR            | 835    | 1                        | NR            | 965    | 0                        | NR            |
| 450    | 417                      | NR            | 580    | 811                      | NR            | 710    | 52                       | NR            | 840    | 1                        | NR            | 970    | 0                        | NR            |
| 455    | 261                      | NR            | 585    | 817                      | NR            | 715    | 45                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 167                      | NR            | 590    | 815                      | NR            | 720    | 39                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 104                      | NR            | 595    | 801                      | NR            | 725    | 33                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 79                       | NR            | 600    | 777                      | NR            | 730    | 28                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 73                       | NR            | 605    | 744                      | NR            | 735    | 24                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 76                       | NR            | 610    | 704                      | NR            | 740    | 21                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 98                       | NR            | 615    | 657                      | NR            | 745    | 18                       | NR            | 875    | 1                        | NR            |        |                          |               |

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### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.47

| λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 139                      | NR            | 620    | 607                      | NR            | 750    | 15                       | NR            | 880    | 0                        | NR            |
| 365    | 0                        | NR            | 495    | 198                      | NR            | 625    | 554                      | NR            | 755    | 13                       | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 267                      | NR            | 630    | 504                      | NR            | 760    | 11                       | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 343                      | NR            | 635    | 452                      | NR            | 765    | 10                       | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 410                      | NR            | 640    | 403                      | NR            | 770    | 8                        | NR            | 900    | 0                        | NR            |
| 385    | 2                        | NR            | 515    | 470                      | NR            | 645    | 357                      | NR            | 775    | 7                        | NR            | 905    | 0                        | NR            |
| 390    | 4                        | NR            | 520    | 516                      | NR            | 650    | 314                      | NR            | 780    | 6                        | NR            | 910    | 0                        | NR            |
| 395    | 7                        | NR            | 525    | 550                      | NR            | 655    | 275                      | NR            | 785    | 5                        | NR            | 915    | 0                        | NR            |
| 400    | 10                       | NR            | 530    | 578                      | NR            | 660    | 240                      | NR            | 790    | 5                        | NR            | 920    | 0                        | NR            |
| 405    | 17                       | NR            | 535    | 601                      | NR            | 665    | 208                      | NR            | 795    | 4                        | NR            | 925    | 0                        | NR            |
| 410    | 35                       | NR            | 540    | 620                      | NR            | 670    | 179                      | NR            | 800    | 4                        | NR            | 930    | 0                        | NR            |
| 415    | 70                       | NR            | 545    | 641                      | NR            | 675    | 155                      | NR            | 805    | 3                        | NR            | 935    | 0                        | NR            |
| 420    | 147                      | NR            | 550    | 664                      | NR            | 680    | 133                      | NR            | 810    | 3                        | NR            | 940    | 0                        | NR            |
| 425    | 285                      | NR            | 555    | 689                      | NR            | 685    | 114                      | NR            | 815    | 2                        | NR            | 945    | 0                        | NR            |
| 430    | 487                      | NR            | 560    | 715                      | NR            | 690    | 98                       | NR            | 820    | 2                        | NR            | 950    | 0                        | NR            |
| 435    | 787                      | NR            | 565    | 743                      | NR            | 695    | 84                       | NR            | 825    | 2                        | NR            | 955    | 0                        | NR            |
| 440    | 1000                     | NR            | 570    | 771                      | NR            | 700    | 72                       | NR            | 830    | 2                        | NR            | 960    | 0                        | NR            |
| 445    | 783                      | NR            | 575    | 794                      | NR            | 705    | 61                       | NR            | 835    | 1                        | NR            | 965    | 0                        | NR            |
| 450    | 417                      | NR            | 580    | 811                      | NR            | 710    | 52                       | NR            | 840    | 1                        | NR            | 970    | 0                        | NR            |
| 455    | 261                      | NR            | 585    | 817                      | NR            | 715    | 45                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 167                      | NR            | 590    | 815                      | NR            | 720    | 39                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 104                      | NR            | 595    | 801                      | NR            | 725    | 33                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 79                       | NR            | 600    | 777                      | NR            | 730    | 28                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 73                       | NR            | 605    | 744                      | NR            | 735    | 24                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 76                       | NR            | 610    | 704                      | NR            | 740    | 21                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 98                       | NR            | 615    | 657                      | NR            | 745    | 18                       | NR            | 875    | 1                        | NR            |        |                          |               |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.78

| λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 139                         | NR               | 620       | 607                         | NR               | 750       | 15                          | NR               | 880       | 0                           | NR               |
| 365       | 0                           | NR               | 495       | 198                         | NR               | 625       | 554                         | NR               | 755       | 13                          | NR               | 885       | 0                           | NR               |
| 370       | 0                           | NR               | 500       | 267                         | NR               | 630       | 504                         | NR               | 760       | 11                          | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 343                         | NR               | 635       | 452                         | NR               | 765       | 10                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 410                         | NR               | 640       | 403                         | NR               | 770       | 8                           | NR               | 900       | 0                           | NR               |
| 385       | 2                           | NR               | 515       | 470                         | NR               | 645       | 357                         | NR               | 775       | 7                           | NR               | 905       | 0                           | NR               |
| 390       | 4                           | NR               | 520       | 516                         | NR               | 650       | 314                         | NR               | 780       | 6                           | NR               | 910       | 0                           | NR               |
| 395       | 7                           | NR               | 525       | 550                         | NR               | 655       | 275                         | NR               | 785       | 5                           | NR               | 915       | 0                           | NR               |
| 400       | 10                          | NR               | 530       | 578                         | NR               | 660       | 240                         | NR               | 790       | 5                           | NR               | 920       | 0                           | NR               |
| 405       | 17                          | NR               | 535       | 601                         | NR               | 665       | 208                         | NR               | 795       | 4                           | NR               | 925       | 0                           | NR               |
| 410       | 35                          | NR               | 540       | 620                         | NR               | 670       | 179                         | NR               | 800       | 4                           | NR               | 930       | 0                           | NR               |
| 415       | 70                          | NR               | 545       | 641                         | NR               | 675       | 155                         | NR               | 805       | 3                           | NR               | 935       | 0                           | NR               |
| 420       | 147                         | NR               | 550       | 664                         | NR               | 680       | 133                         | NR               | 810       | 3                           | NR               | 940       | 0                           | NR               |
| 425       | 285                         | NR               | 555       | 689                         | NR               | 685       | 114                         | NR               | 815       | 2                           | NR               | 945       | 0                           | NR               |
| 430       | 487                         | NR               | 560       | 715                         | NR               | 690       | 98                          | NR               | 820       | 2                           | NR               | 950       | 0                           | NR               |
| 435       | 787                         | NR               | 565       | 743                         | NR               | 695       | 84                          | NR               | 825       | 2                           | NR               | 955       | 0                           | NR               |
| 440       | 1000                        | NR               | 570       | 771                         | NR               | 700       | 72                          | NR               | 830       | 2                           | NR               | 960       | 0                           | NR               |
| 445       | 783                         | NR               | 575       | 794                         | NR               | 705       | 61                          | NR               | 835       | 1                           | NR               | 965       | 0                           | NR               |
| 450       | 417                         | NR               | 580       | 811                         | NR               | 710       | 52                          | NR               | 840       | 1                           | NR               | 970       | 0                           | NR               |
| 455       | 261                         | NR               | 585       | 817                         | NR               | 715       | 45                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 167                         | NR               | 590       | 815                         | NR               | 720       | 39                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 104                         | NR               | 595       | 801                         | NR               | 725       | 33                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 79                          | NR               | 600       | 777                         | NR               | 730       | 28                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 73                          | NR               | 605       | 744                         | NR               | 735       | 24                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 76                          | NR               | 610       | 704                         | NR               | 740       | 21                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 98                          | NR               | 615       | 657                         | NR               | 745       | 18                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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TM-30-18

### Summary

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



### Color Vector Graphics



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

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



### Color Rendition by Hue-Angle Bin



**Measure Comparisons**


(END OF REPORT)