

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



Scaled data based on original data using  
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions  
(formerly Eaton)

Brand: LUMARK

Report Number: P1067363

Luminaire Tested: **NAV-SA6C-830-U-T2BC**

Issue Date: 08/07/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1067363  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 08/07/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: LUMARK  
Catalog Number: NAV-SA6C-830-U-T2BC  
Description: Navion AREA AND ROADWAY LUMINAIRE 1050mA 6xLight Square PACKAGE  
80CRI 3000K FIXTURE w/ TYPE II ANGLED BACKLIGHT CONTROL  
Light Source: (84) 3000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 25945.7 lumens  
Efficiency: N/A  
Efficacy: 93.0 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 1.5' x H: 0')  
IES Classification: Type II - Short  
BUG Rating: B0 - U0 - G4

Input Watts (W): 279.1  
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

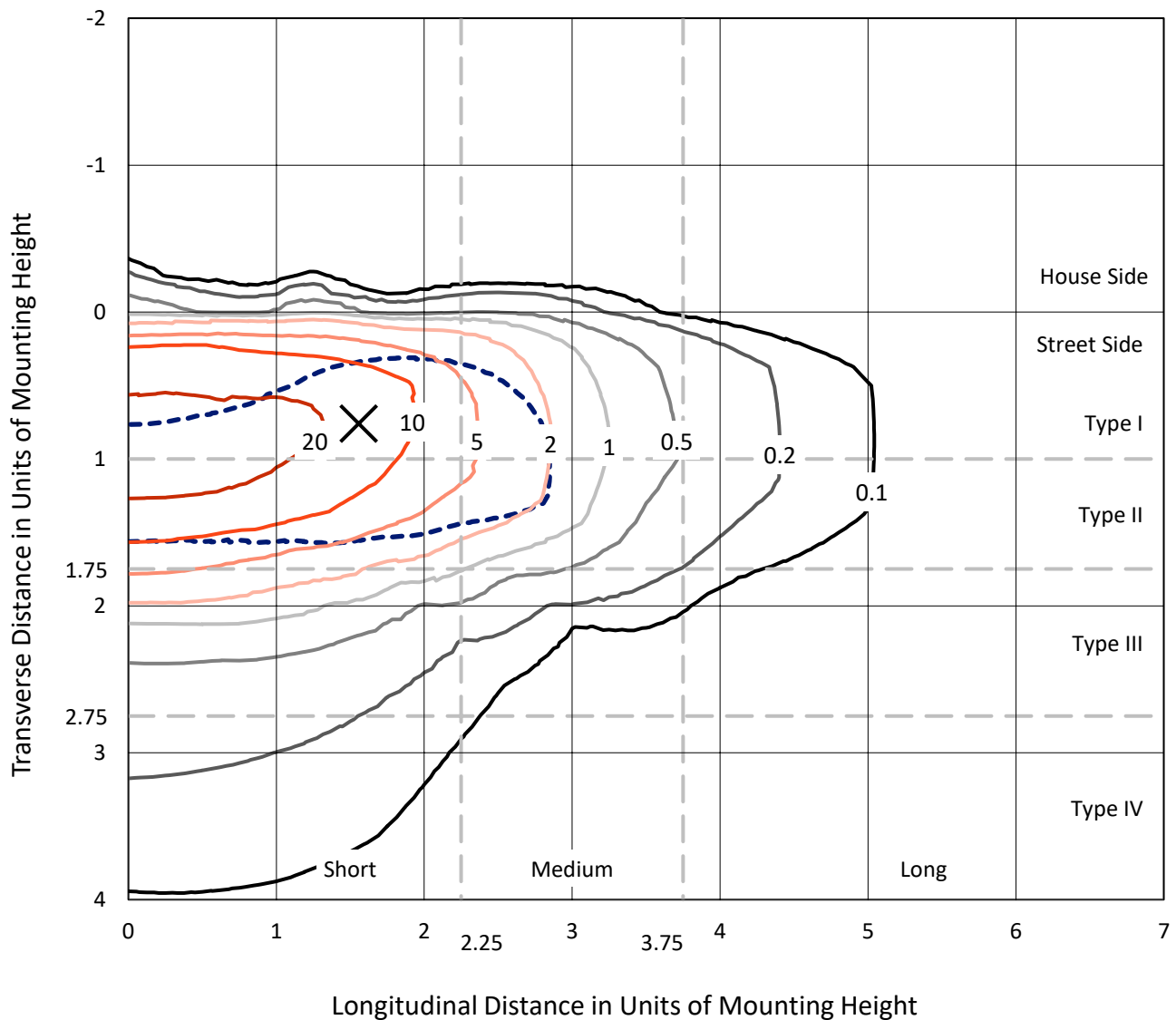


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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
 - - - 1/2 Max cd

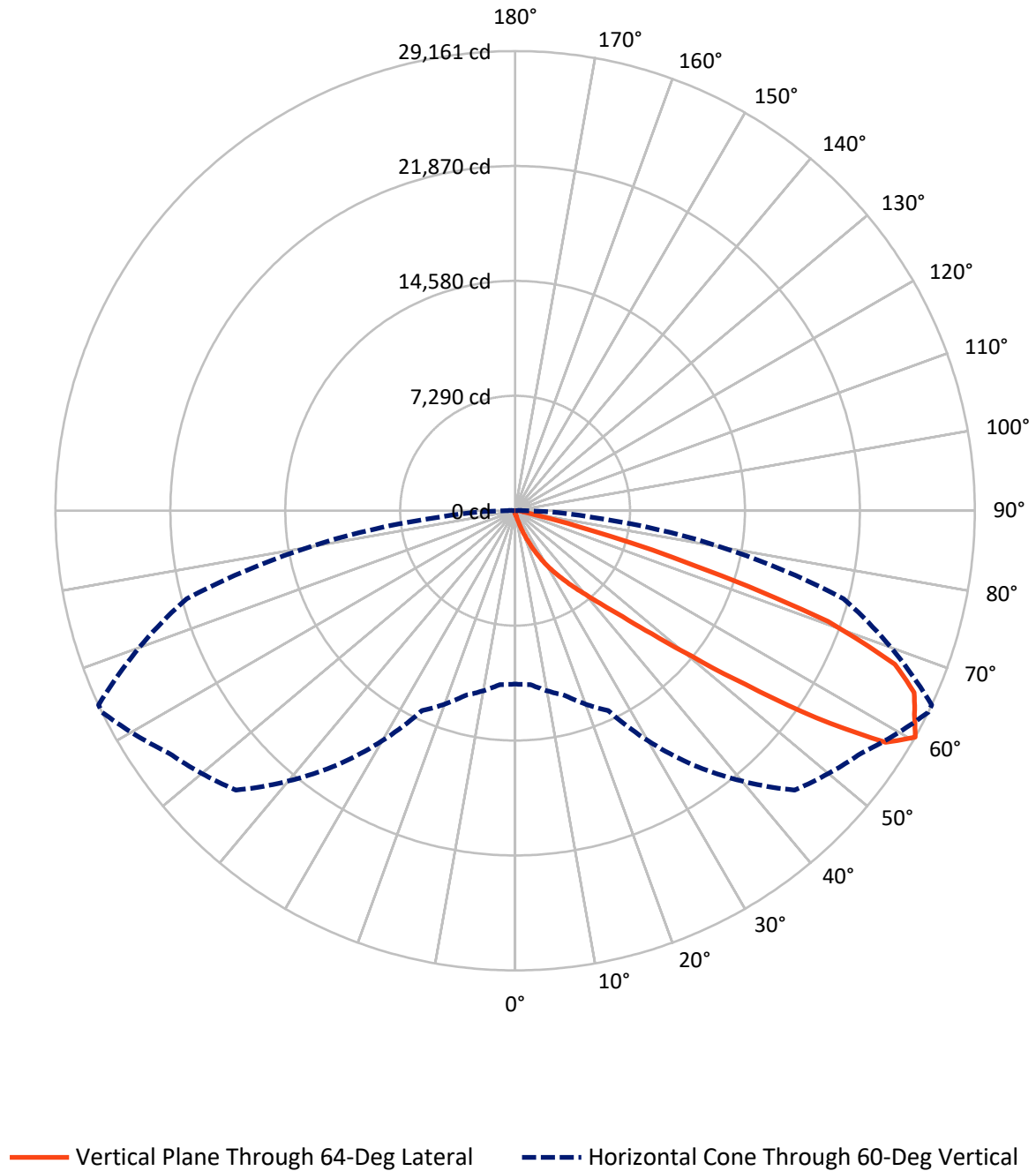


Based on 15 foot mounting height. Maximum calculated value = 37.2 fc  
 Type II - Short - N/A

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## Luminous Intensity Polar Plot



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**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 105.2    | 0.0    | 105.2   |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 25840.5  | 0.0    | 25840.5 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 25945.7  | 0.0    | 25945.7 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 25.8    | 0.1       |
| 10°-20°   | 255.0   | 1.0       |
| 20°-30°   | 846.8   | 3.3       |
| 30°-40°   | 2259.5  | 8.7       |
| 40°-50°   | 5743.2  | 22.1      |
| 50°-60°   | 8372.3  | 32.3      |
| 60°-70°   | 6466.8  | 24.9      |
| 70°-80°   | 1775.9  | 6.8       |
| 80°-90°   | 200.5   | 0.8       |
| 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°    | 25945.7 | 100.0     |
| 0°-180°   | 25945.7 | 100.0     |



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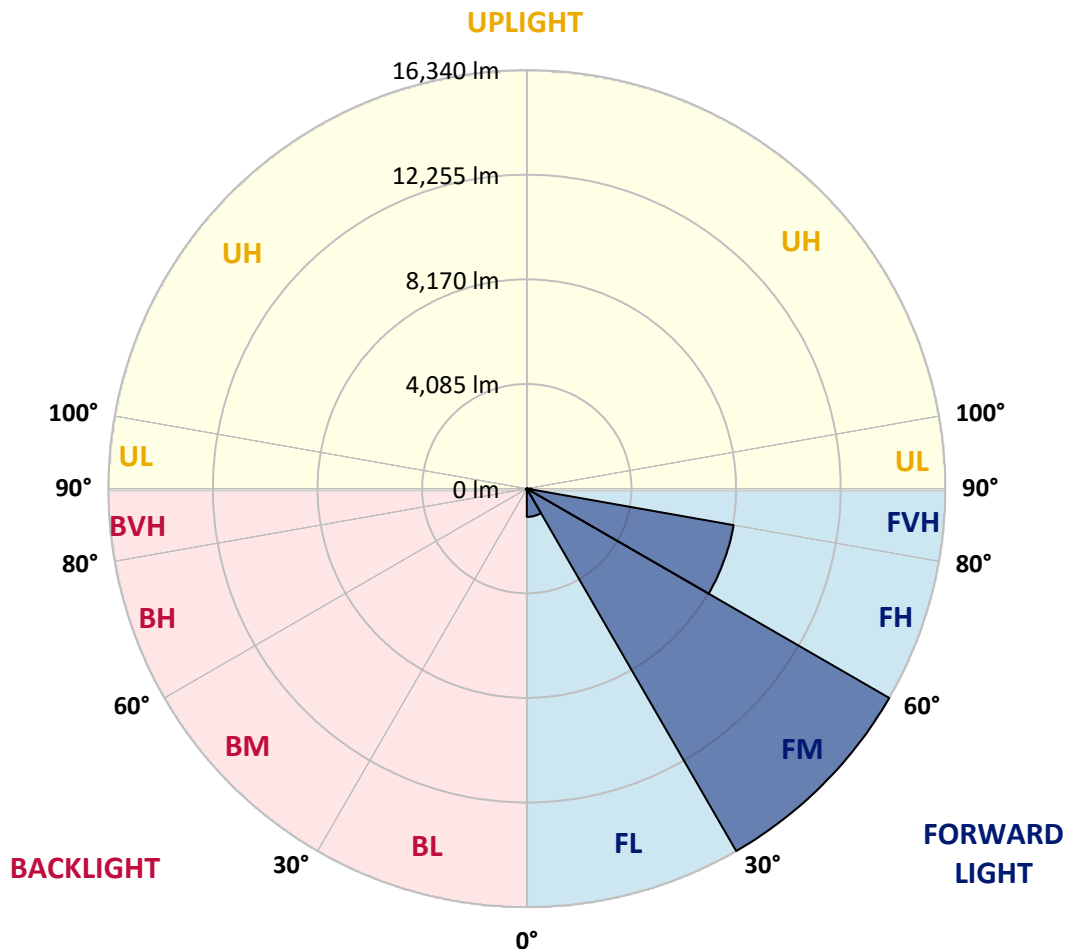
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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |          |
|------|-------------|---------|-----------|-------------------------|------|----------|
|      |             |         |           | B                       | U    | G        |
| FL   | (0°-30°)    | 1104.0  | 4.3       |                         |      |          |
| FM   | (30°-60°)   | 16340.1 | 63.0      |                         |      |          |
| FH   | (60°-80°)   | 8200.7  | 31.6      |                         |      | G4/12000 |
| FVH  | (80°-90°)   | 195.7   | 0.8       |                         |      | G2/225   |
| BL   | (0°-30°)    | 23.6    | 0.1       | B0/110                  |      |          |
| BM   | (30°-60°)   | 34.9    | 0.1       | B0/220                  |      |          |
| BH   | (60°-80°)   | 41.9    | 0.2       | B0/110                  |      | G0/110   |
| BVH  | (80°-90°)   | 4.7     | 0.0       |                         |      | G0/10    |
| UL   | (90°-100°)  | 0.0     | 0.0       |                         | U0/0 |          |
| UH   | (100°-180°) | 0.0     | 0.0       |                         | U0/0 |          |

**BUG Rating: B0-U0-G4**

Type II Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 45°     | 55°     | 64°     | 65°     | 75°     | 85°    |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| 0°    | 171.4   | 171.4   | 171.4   | 171.4   | 171.4   | 171.4   | 171.4   | 171.4   | 171.4   | 171.4   | 171.4  |
| 2.5°  | 228.5   | 228.5   | 228.5   | 221.4   | 214.3   | 214.3   | 207.1   | 200.0   | 200.0   | 185.7   | 178.5  |
| 5°    | 350.0   | 350.0   | 335.7   | 321.4   | 300.0   | 271.4   | 242.8   | 221.4   | 221.4   | 200.0   | 185.7  |
| 7.5°  | 685.6   | 707.1   | 642.8   | 564.2   | 457.1   | 385.7   | 307.1   | 257.1   | 250.0   | 214.3   | 185.7  |
| 10°   | 1485.5  | 1471.2  | 1371.2  | 1178.4  | 928.4   | 671.3   | 428.5   | 314.2   | 300.0   | 228.5   | 185.7  |
| 12.5° | 2235.4  | 2256.8  | 2149.7  | 1935.5  | 1635.5  | 1192.7  | 735.6   | 407.1   | 392.8   | 250.0   | 185.7  |
| 15°   | 2878.2  | 2878.2  | 2806.8  | 2699.6  | 2371.1  | 1906.9  | 1185.6  | 607.1   | 557.1   | 271.4   | 178.5  |
| 17.5° | 3321.0  | 3313.9  | 3285.3  | 3256.7  | 3063.9  | 2585.4  | 1814.0  | 971.3   | 857.0   | 321.4   | 178.5  |
| 20°   | 3820.9  | 3799.5  | 3835.2  | 3778.1  | 3628.1  | 3249.6  | 2478.2  | 1442.7  | 1335.5  | 407.1   | 178.5  |
| 22.5° | 4342.3  | 4363.7  | 4392.3  | 4335.1  | 4170.9  | 3842.4  | 3178.2  | 2049.7  | 1935.5  | 564.2   | 185.7  |
| 25°   | 5006.5  | 4992.2  | 5056.5  | 5006.5  | 4799.4  | 4413.7  | 3835.2  | 2713.9  | 2549.7  | 785.6   | 200.0  |
| 27.5° | 5820.7  | 5792.1  | 5834.9  | 5706.4  | 5435.0  | 5042.2  | 4420.8  | 3392.4  | 3199.6  | 1128.4  | 228.5  |
| 30°   | 6899.1  | 6920.5  | 6727.7  | 6577.7  | 6192.0  | 5670.7  | 5070.8  | 4120.9  | 3920.9  | 1535.5  | 257.1  |
| 32.5° | 8598.9  | 8448.9  | 8148.9  | 7541.9  | 7034.8  | 6370.6  | 5720.7  | 4756.5  | 4578.0  | 2056.9  | 300.0  |
| 35°   | 11248.5 | 11277.1 | 10620.0 | 9120.2  | 8020.4  | 7249.0  | 6434.9  | 5456.4  | 5327.9  | 2649.7  | 357.1  |
| 37.5° | 14476.7 | 14398.1 | 13819.6 | 11927.0 | 9463.0  | 8341.8  | 7249.0  | 6220.6  | 6034.9  | 3292.4  | 428.5  |
| 40°   | 18133.3 | 17804.8 | 17469.1 | 16183.6 | 12469.8 | 9713.0  | 8277.5  | 7106.2  | 6963.4  | 4035.2  | 542.8  |
| 42.5° | 21061.5 | 20975.8 | 21033.0 | 20497.3 | 17483.4 | 12048.4 | 9641.6  | 8191.8  | 8020.4  | 4956.5  | 742.8  |
| 45°   | 22504.2 | 22382.8 | 22725.6 | 23125.5 | 22354.2 | 17019.2 | 11841.3 | 9577.3  | 9348.8  | 6042.1  | 1049.9 |
| 47.5° | 22118.5 | 22032.8 | 22768.4 | 23554.1 | 24582.5 | 22782.7 | 15433.7 | 11648.5 | 11255.7 | 7434.7  | 1506.9 |
| 50°   | 20218.8 | 20225.9 | 21432.9 | 22897.0 | 24525.4 | 25703.8 | 20754.4 | 14483.8 | 13991.0 | 9284.5  | 2221.1 |
| 52.5° | 18369.0 | 18426.2 | 19704.6 | 21840.0 | 23675.5 | 26046.6 | 25425.2 | 18304.7 | 17504.8 | 11462.8 | 3063.9 |
| 55°   | 16469.3 | 16497.8 | 17626.3 | 20633.0 | 23275.5 | 25025.3 | 27824.9 | 23225.5 | 22375.6 | 14176.7 | 3885.2 |
| 57.5° | 14640.9 | 14640.9 | 15062.3 | 17733.4 | 22839.9 | 24932.4 | 27539.2 | 27724.9 | 27032.2 | 17276.3 | 4492.3 |
| 60°   | 10998.6 | 11070.0 | 12119.8 | 13991.0 | 19697.4 | 25068.1 | 26810.8 | 29160.5 | 29160.5 | 21575.7 | 4956.5 |
| 62.5° | 5556.4  | 5663.5  | 6970.5  | 8791.7  | 13512.5 | 23197.0 | 26925.0 | 28439.1 | 28553.4 | 25368.1 | 6013.5 |
| 65°   | 2606.8  | 2728.2  | 3428.1  | 4713.7  | 7270.5  | 16326.4 | 25739.5 | 27824.9 | 27789.2 | 24646.8 | 8241.8 |
| 67.5° | 1871.2  | 1906.9  | 2142.6  | 2749.6  | 3913.8  | 7156.2  | 19647.4 | 25989.4 | 26003.7 | 20940.1 | 9477.3 |
| 70°   | 1678.4  | 1678.4  | 1735.5  | 1914.0  | 2356.8  | 3199.6  | 9548.7  | 21047.2 | 22068.5 | 16169.3 | 8784.6 |
| 72.5° | 1656.9  | 1642.6  | 1628.4  | 1635.5  | 1592.6  | 1606.9  | 3278.1  | 11884.2 | 13341.1 | 11312.8 | 7006.2 |
| 75°   | 1614.1  | 1614.1  | 1599.8  | 1549.8  | 1271.3  | 1035.6  | 1128.4  | 4806.5  | 5556.4  | 7556.2  | 5199.3 |
| 77.5° | 1278.4  | 1407.0  | 1556.9  | 1464.1  | 1164.1  | 778.5   | 657.1   | 1392.7  | 1756.9  | 4635.1  | 3770.9 |
| 80°   | 592.8   | 599.9   | 592.8   | 621.3   | 742.8   | 557.1   | 485.7   | 678.5   | 685.6   | 2571.1  | 2335.4 |
| 82.5° | 428.5   | 435.7   | 414.2   | 371.4   | 328.5   | 300.0   | 399.9   | 499.9   | 535.6   | 1178.4  | 871.3  |
| 85°   | 128.6   | 121.4   | 142.8   | 192.8   | 228.5   | 264.3   | 335.7   | 421.4   | 442.8   | 435.7   | 128.6  |
| 87.5° | 57.1    | 57.1    | 71.4    | 100.0   | 135.7   | 200.0   | 292.8   | 385.7   | 392.8   | 449.9   | 35.7   |
| 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°    | 171.4  | 171.4 | 171.4 | 171.4 | 171.4 | 171.4 | 171.4 | 171.4 | 171.4 | 171.4 | 171.4 |
| 2.5°  | 178.5  | 171.4 | 164.3 | 157.1 | 150.0 | 142.8 | 135.7 | 135.7 | 142.8 | 142.8 | 142.8 |
| 5°    | 171.4  | 164.3 | 150.0 | 135.7 | 128.6 | 121.4 | 114.3 | 114.3 | 121.4 | 121.4 | 121.4 |
| 7.5°  | 171.4  | 157.1 | 142.8 | 128.6 | 114.3 | 107.1 | 100.0 | 100.0 | 100.0 | 107.1 | 107.1 |
| 10°   | 171.4  | 157.1 | 135.7 | 114.3 | 100.0 | 92.8  | 85.7  | 78.6  | 85.7  | 85.7  | 85.7  |
| 12.5° | 164.3  | 150.0 | 128.6 | 107.1 | 85.7  | 71.4  | 64.3  | 64.3  | 64.3  | 64.3  | 64.3  |
| 15°   | 157.1  | 142.8 | 121.4 | 92.8  | 71.4  | 57.1  | 42.9  | 42.9  | 42.9  | 50.0  | 50.0  |
| 17.5° | 150.0  | 135.7 | 107.1 | 71.4  | 50.0  | 35.7  | 28.6  | 28.6  | 28.6  | 35.7  | 35.7  |
| 20°   | 150.0  | 128.6 | 92.8  | 57.1  | 35.7  | 21.4  | 14.3  | 14.3  | 14.3  | 21.4  | 28.6  |
| 22.5° | 150.0  | 128.6 | 85.7  | 42.9  | 21.4  | 14.3  | 7.1   | 7.1   | 7.1   | 7.1   | 7.1   |
| 25°   | 150.0  | 121.4 | 78.6  | 35.7  | 14.3  | 7.1   | 0.0   | 0.0   | 7.1   | 14.3  | 21.4  |
| 27.5° | 150.0  | 114.3 | 64.3  | 21.4  | 14.3  | 7.1   | 0.0   | 7.1   | 14.3  | 14.3  | 14.3  |
| 30°   | 150.0  | 114.3 | 57.1  | 21.4  | 7.1   | 0.0   | 0.0   | 7.1   | 14.3  | 14.3  | 21.4  |
| 32.5° | 157.1  | 107.1 | 50.0  | 14.3  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 35°   | 164.3  | 100.0 | 42.9  | 14.3  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 37.5° | 178.5  | 100.0 | 28.6  | 7.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 40°   | 200.0  | 107.1 | 28.6  | 7.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 42.5° | 250.0  | 114.3 | 21.4  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 45°   | 350.0  | 142.8 | 21.4  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 47.5° | 514.2  | 214.3 | 21.4  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 50°   | 749.9  | 292.8 | 14.3  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 52.5° | 921.3  | 292.8 | 14.3  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 55°   | 914.2  | 185.7 | 7.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 57.5° | 699.9  | 128.6 | 7.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 60°   | 592.8  | 92.8  | 7.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 62.5° | 714.2  | 71.4  | 7.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 65°   | 1271.3 | 64.3  | 7.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 67.5° | 2042.6 | 64.3  | 7.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 70°   | 2285.4 | 64.3  | 7.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 72.5° | 1785.5 | 57.1  | 7.1   | 7.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 75°   | 978.4  | 50.0  | 7.1   | 7.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 77.5° | 492.8  | 35.7  | 14.3  | 7.1   | 7.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 80°   | 207.1  | 28.6  | 14.3  | 7.1   | 7.1   | 7.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 82.5° | 71.4   | 28.6  | 14.3  | 14.3  | 7.1   | 7.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 85°   | 35.7   | 21.4  | 21.4  | 14.3  | 14.3  | 7.1   | 7.1   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 21.4   | 21.4  | 21.4  | 14.3  | 14.3  | 7.1   | 7.1   | 0.0   | 0.0   | 0.0   | 7.1   |
| 90°   | 0.0    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

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



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

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-9

Test Date: 10/10/2024

Luminaire Tested: GSS-SB1A-830-U-5WQ

Data in this report applies to families of products including GSS-SB1A-830-U-5WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-9  
 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-830-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 80 CRI  
 3000K CCT 26 LEDS

### Spectral Parameters

CCT (K): 3055  
 CIE  $u'$ : 0.2475  
 CIE  $v'$ : 0.5247  
 Duv: 0.0032  
 CIE x: 0.4377  
 CIE y: 0.4124  
 CIE z: 0.1499  
 Peak Wavelength (nm): 604  
 Dominant Wavelength (nm): 581  
 Purity: 55.16339  
 R<sub>f</sub>: 81.5  
 R<sub>g</sub>: 99.2

CRI (Ra): 80.9  
 R1: 79.5  
 R2: 85.6  
 R3: 92.1  
 R4: 82.4  
 R5: 78.9  
 R6: 81.7  
 R7: 85.1  
 R8: 61.9  
 R9: 6.8  
 R10: 67.1  
 R11: 82.5  
 R12: 63.4  
 R13: 80.2  
 R14: 95.1  
 R15: 71.7



### Test Conditions

Stabilization Time: 20M  
 Operation Time: 1H 20M  
 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 3000K 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    | 170                      | NR            | 620    | 938                      | NR            | 750    | 35                       | NR            | 880    | 1                        | NR            |
| 365    | 0                        | NR            | 495    | 234                      | NR            | 625    | 894                      | NR            | 755    | 30                       | NR            | 885    | 1                        | NR            |
| 370    | 0                        | NR            | 500    | 302                      | NR            | 630    | 847                      | NR            | 760    | 26                       | NR            | 890    | 1                        | NR            |
| 375    | 0                        | NR            | 505    | 371                      | NR            | 635    | 788                      | NR            | 765    | 22                       | NR            | 895    | 1                        | NR            |
| 380    | 0                        | NR            | 510    | 431                      | NR            | 640    | 728                      | NR            | 770    | 19                       | NR            | 900    | 1                        | NR            |
| 385    | 0                        | NR            | 515    | 482                      | NR            | 645    | 665                      | NR            | 775    | 16                       | NR            | 905    | 1                        | NR            |
| 390    | 0                        | NR            | 520    | 523                      | NR            | 650    | 603                      | NR            | 780    | 14                       | NR            | 910    | 0                        | NR            |
| 395    | 2                        | NR            | 525    | 553                      | NR            | 655    | 542                      | NR            | 785    | 12                       | NR            | 915    | 0                        | NR            |
| 400    | 4                        | NR            | 530    | 580                      | NR            | 660    | 484                      | NR            | 790    | 11                       | NR            | 920    | 0                        | NR            |
| 405    | 8                        | NR            | 535    | 603                      | NR            | 665    | 430                      | NR            | 795    | 9                        | NR            | 925    | 0                        | NR            |
| 410    | 18                       | NR            | 540    | 622                      | NR            | 670    | 377                      | NR            | 800    | 8                        | NR            | 930    | 0                        | NR            |
| 415    | 36                       | NR            | 545    | 644                      | NR            | 675    | 330                      | NR            | 805    | 7                        | NR            | 935    | 0                        | NR            |
| 420    | 71                       | NR            | 550    | 668                      | NR            | 680    | 289                      | NR            | 810    | 6                        | NR            | 940    | 0                        | NR            |
| 425    | 131                      | NR            | 555    | 693                      | NR            | 685    | 250                      | NR            | 815    | 5                        | NR            | 945    | 0                        | NR            |
| 430    | 215                      | NR            | 560    | 720                      | NR            | 690    | 218                      | NR            | 820    | 4                        | NR            | 950    | 0                        | NR            |
| 435    | 341                      | NR            | 565    | 754                      | NR            | 695    | 188                      | NR            | 825    | 4                        | NR            | 955    | 0                        | NR            |
| 440    | 514                      | NR            | 570    | 792                      | NR            | 700    | 161                      | NR            | 830    | 3                        | NR            | 960    | 0                        | NR            |
| 445    | 576                      | NR            | 575    | 832                      | NR            | 705    | 139                      | NR            | 835    | 3                        | NR            | 965    | 0                        | NR            |
| 450    | 358                      | NR            | 580    | 875                      | NR            | 710    | 119                      | NR            | 840    | 3                        | NR            | 970    | 0                        | NR            |
| 455    | 222                      | NR            | 585    | 913                      | NR            | 715    | 102                      | NR            | 845    | 2                        | NR            | 975    | 0                        | NR            |
| 460    | 170                      | NR            | 590    | 950                      | NR            | 720    | 88                       | NR            | 850    | 2                        | NR            | 980    | 0                        | NR            |
| 465    | 115                      | NR            | 595    | 977                      | NR            | 725    | 76                       | NR            | 855    | 2                        | NR            | 985    | 0                        | NR            |
| 470    | 88                       | NR            | 600    | 994                      | NR            | 730    | 65                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 87                       | NR            | 605    | 997                      | NR            | 735    | 56                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 96                       | NR            | 610    | 990                      | NR            | 740    | 47                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 122                      | NR            | 615    | 971                      | NR            | 745    | 41                       | NR            | 875    | 1                        | NR            |        |                          |               |

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### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.28

| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360               | 0                                    | NR                             | 490               | 170                                  | NR                             | 620               | 938                                  | NR                             | 750               | 35                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 234                                  | NR                             | 625               | 894                                  | NR                             | 755               | 30                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 302                                  | NR                             | 630               | 847                                  | NR                             | 760               | 26                                   | NR                             | 890               | 1                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 371                                  | NR                             | 635               | 788                                  | NR                             | 765               | 22                                   | NR                             | 895               | 1                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 431                                  | NR                             | 640               | 728                                  | NR                             | 770               | 19                                   | NR                             | 900               | 1                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 482                                  | NR                             | 645               | 665                                  | NR                             | 775               | 16                                   | NR                             | 905               | 1                                    | NR                             |
| 390               | 0                                    | NR                             | 520               | 523                                  | NR                             | 650               | 603                                  | NR                             | 780               | 14                                   | NR                             | 910               | 0                                    | NR                             |
| 395               | 2                                    | NR                             | 525               | 553                                  | NR                             | 655               | 542                                  | NR                             | 785               | 12                                   | NR                             | 915               | 0                                    | NR                             |
| 400               | 4                                    | NR                             | 530               | 580                                  | NR                             | 660               | 484                                  | NR                             | 790               | 11                                   | NR                             | 920               | 0                                    | NR                             |
| 405               | 8                                    | NR                             | 535               | 603                                  | NR                             | 665               | 430                                  | NR                             | 795               | 9                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 18                                   | NR                             | 540               | 622                                  | NR                             | 670               | 377                                  | NR                             | 800               | 8                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 36                                   | NR                             | 545               | 644                                  | NR                             | 675               | 330                                  | NR                             | 805               | 7                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 71                                   | NR                             | 550               | 668                                  | NR                             | 680               | 289                                  | NR                             | 810               | 6                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 131                                  | NR                             | 555               | 693                                  | NR                             | 685               | 250                                  | NR                             | 815               | 5                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 215                                  | NR                             | 560               | 720                                  | NR                             | 690               | 218                                  | NR                             | 820               | 4                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 341                                  | NR                             | 565               | 754                                  | NR                             | 695               | 188                                  | NR                             | 825               | 4                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 514                                  | NR                             | 570               | 792                                  | NR                             | 700               | 161                                  | NR                             | 830               | 3                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 576                                  | NR                             | 575               | 832                                  | NR                             | 705               | 139                                  | NR                             | 835               | 3                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 358                                  | NR                             | 580               | 875                                  | NR                             | 710               | 119                                  | NR                             | 840               | 3                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 222                                  | NR                             | 585               | 913                                  | NR                             | 715               | 102                                  | NR                             | 845               | 2                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 170                                  | NR                             | 590               | 950                                  | NR                             | 720               | 88                                   | NR                             | 850               | 2                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 115                                  | NR                             | 595               | 977                                  | NR                             | 725               | 76                                   | NR                             | 855               | 2                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 88                                   | NR                             | 600               | 994                                  | NR                             | 730               | 65                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 87                                   | NR                             | 605               | 997                                  | NR                             | 735               | 56                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 96                                   | NR                             | 610               | 990                                  | NR                             | 740               | 47                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 122                                  | NR                             | 615               | 971                                  | NR                             | 745               | 41                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.33

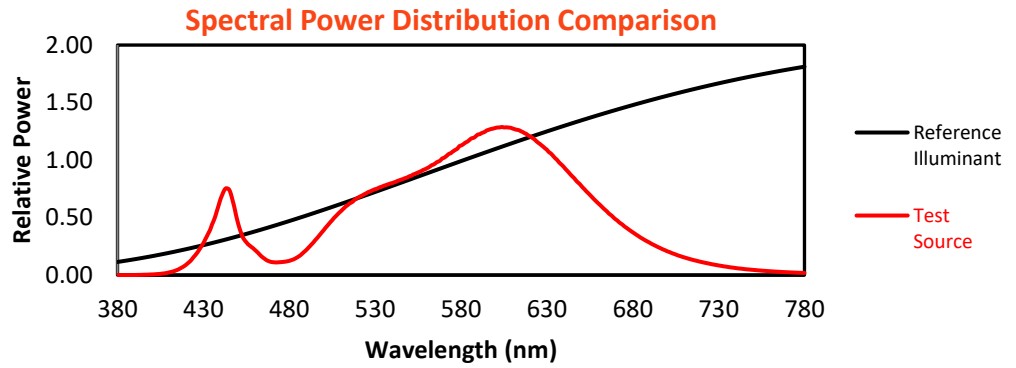
| $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|
| 360               | 0                                      | NR                             | 490               | 170                                    | NR                             | 620               | 938                                    | NR                             | 750               | 35                                     | NR                             | 880               | 1                                      | NR                             |
| 365               | 0                                      | NR                             | 495               | 234                                    | NR                             | 625               | 894                                    | NR                             | 755               | 30                                     | NR                             | 885               | 1                                      | NR                             |
| 370               | 0                                      | NR                             | 500               | 302                                    | NR                             | 630               | 847                                    | NR                             | 760               | 26                                     | NR                             | 890               | 1                                      | NR                             |
| 375               | 0                                      | NR                             | 505               | 371                                    | NR                             | 635               | 788                                    | NR                             | 765               | 22                                     | NR                             | 895               | 1                                      | NR                             |
| 380               | 0                                      | NR                             | 510               | 431                                    | NR                             | 640               | 728                                    | NR                             | 770               | 19                                     | NR                             | 900               | 1                                      | NR                             |
| 385               | 0                                      | NR                             | 515               | 482                                    | NR                             | 645               | 665                                    | NR                             | 775               | 16                                     | NR                             | 905               | 1                                      | NR                             |
| 390               | 0                                      | NR                             | 520               | 523                                    | NR                             | 650               | 603                                    | NR                             | 780               | 14                                     | NR                             | 910               | 0                                      | NR                             |
| 395               | 2                                      | NR                             | 525               | 553                                    | NR                             | 655               | 542                                    | NR                             | 785               | 12                                     | NR                             | 915               | 0                                      | NR                             |
| 400               | 4                                      | NR                             | 530               | 580                                    | NR                             | 660               | 484                                    | NR                             | 790               | 11                                     | NR                             | 920               | 0                                      | NR                             |
| 405               | 8                                      | NR                             | 535               | 603                                    | NR                             | 665               | 430                                    | NR                             | 795               | 9                                      | NR                             | 925               | 0                                      | NR                             |
| 410               | 18                                     | NR                             | 540               | 622                                    | NR                             | 670               | 377                                    | NR                             | 800               | 8                                      | NR                             | 930               | 0                                      | NR                             |
| 415               | 36                                     | NR                             | 545               | 644                                    | NR                             | 675               | 330                                    | NR                             | 805               | 7                                      | NR                             | 935               | 0                                      | NR                             |
| 420               | 71                                     | NR                             | 550               | 668                                    | NR                             | 680               | 289                                    | NR                             | 810               | 6                                      | NR                             | 940               | 0                                      | NR                             |
| 425               | 131                                    | NR                             | 555               | 693                                    | NR                             | 685               | 250                                    | NR                             | 815               | 5                                      | NR                             | 945               | 0                                      | NR                             |
| 430               | 215                                    | NR                             | 560               | 720                                    | NR                             | 690               | 218                                    | NR                             | 820               | 4                                      | NR                             | 950               | 0                                      | NR                             |
| 435               | 341                                    | NR                             | 565               | 754                                    | NR                             | 695               | 188                                    | NR                             | 825               | 4                                      | NR                             | 955               | 0                                      | NR                             |
| 440               | 514                                    | NR                             | 570               | 792                                    | NR                             | 700               | 161                                    | NR                             | 830               | 3                                      | NR                             | 960               | 0                                      | NR                             |
| 445               | 576                                    | NR                             | 575               | 832                                    | NR                             | 705               | 139                                    | NR                             | 835               | 3                                      | NR                             | 965               | 0                                      | NR                             |
| 450               | 358                                    | NR                             | 580               | 875                                    | NR                             | 710               | 119                                    | NR                             | 840               | 3                                      | NR                             | 970               | 0                                      | NR                             |
| 455               | 222                                    | NR                             | 585               | 913                                    | NR                             | 715               | 102                                    | NR                             | 845               | 2                                      | NR                             | 975               | 0                                      | NR                             |
| 460               | 170                                    | NR                             | 590               | 950                                    | NR                             | 720               | 88                                     | NR                             | 850               | 2                                      | NR                             | 980               | 0                                      | NR                             |
| 465               | 115                                    | NR                             | 595               | 977                                    | NR                             | 725               | 76                                     | NR                             | 855               | 2                                      | NR                             | 985               | 0                                      | NR                             |
| 470               | 88                                     | NR                             | 600               | 994                                    | NR                             | 730               | 65                                     | NR                             | 860               | 1                                      | NR                             | 990               | 0                                      | NR                             |
| 475               | 87                                     | NR                             | 605               | 997                                    | NR                             | 735               | 56                                     | NR                             | 865               | 1                                      | NR                             | 995               | 0                                      | NR                             |
| 480               | 96                                     | NR                             | 610               | 990                                    | NR                             | 740               | 47                                     | NR                             | 870               | 1                                      | NR                             | 1000              | 0                                      | NR                             |
| 485               | 122                                    | NR                             | 615               | 971                                    | NR                             | 745               | 41                                     | NR                             | 875               | 1                                      | NR                             |                   |                                        |                                |

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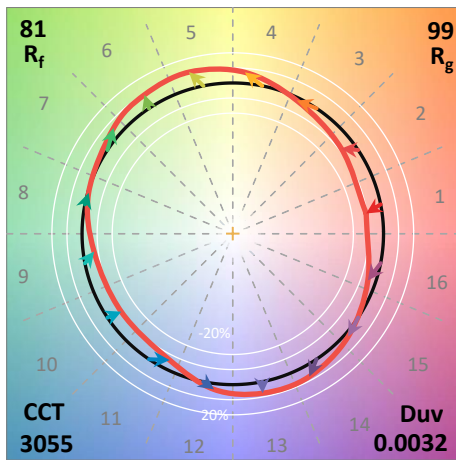
TM-30-18

### Summary

$R_f = 81.5$   
 $R_g = 99.2$   
 $CIE R_a = 80.9$   
 $R_9 = 6.8$



### Color Vector Graphics

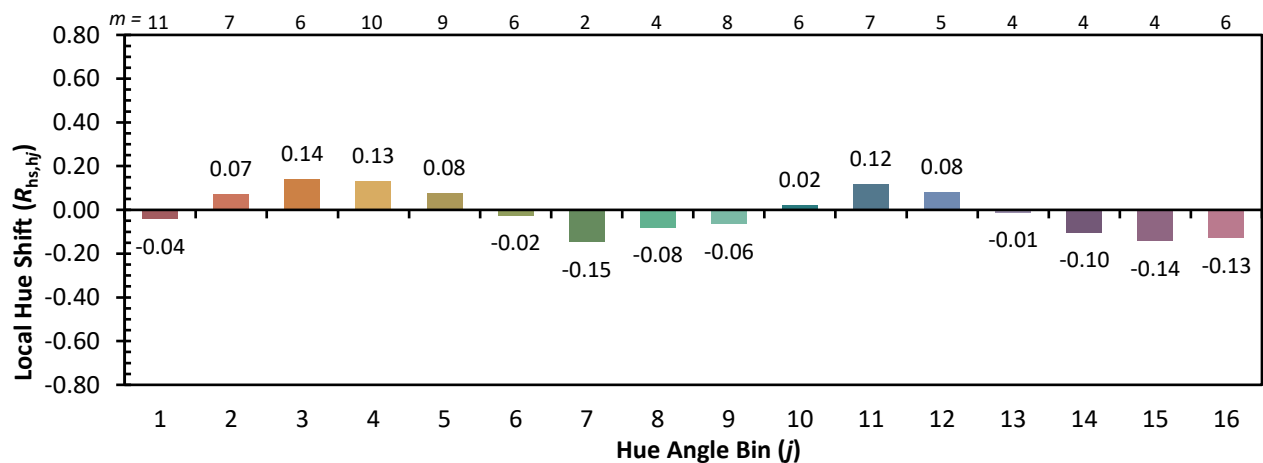


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 74 | CES51 = 89 | CES76 = 70 |
| CES02 = 63 | CES27 = 88 | CES52 = 91 | CES77 = 86 |
| CES03 = 31 | CES28 = 89 | CES53 = 81 | CES78 = 72 |
| CES04 = 70 | CES29 = 67 | CES54 = 87 | CES79 = 90 |
| CES05 = 50 | CES30 = 68 | CES55 = 85 | CES80 = 88 |
| CES06 = 51 | CES31 = 71 | CES56 = 78 | CES81 = 78 |
| CES07 = 42 | CES32 = 70 | CES57 = 76 | CES82 = 95 |
| CES08 = 41 | CES33 = 71 | CES58 = 78 | CES83 = 90 |
| CES09 = 29 | CES34 = 82 | CES59 = 92 | CES84 = 93 |
| CES10 = 76 | CES35 = 90 | CES60 = 95 | CES85 = 86 |
| CES11 = 59 | CES36 = 93 | CES61 = 93 | CES86 = 72 |
| CES12 = 65 | CES37 = 87 | CES62 = 83 | CES87 = 85 |
| CES13 = 43 | CES38 = 75 | CES63 = 77 | CES88 = 83 |
| CES14 = 74 | CES39 = 94 | CES64 = 83 | CES89 = 75 |
| CES15 = 71 | CES40 = 89 | CES65 = 77 | CES90 = 81 |
| CES16 = 47 | CES41 = 85 | CES66 = 80 | CES91 = 96 |
| CES17 = 50 | CES42 = 86 | CES67 = 79 | CES92 = 73 |
| CES18 = 56 | CES43 = 81 | CES68 = 84 | CES93 = 84 |
| CES19 = 72 | CES44 = 99 | CES69 = 90 | CES94 = 64 |
| CES20 = 66 | CES45 = 87 | CES70 = 77 | CES95 = 80 |
| CES21 = 87 | CES46 = 82 | CES71 = 76 | CES96 = 84 |
| CES22 = 79 | CES47 = 77 | CES72 = 92 | CES97 = 87 |
| CES23 = 92 | CES48 = 71 | CES73 = 71 | CES98 = 81 |
| CES24 = 91 | CES49 = 81 | CES74 = 93 | CES99 = 74 |
| CES25 = 72 | CES50 = 89 | CES75 = 74 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**


(END OF REPORT)