

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



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

Test Report Prepared for  
Cooper Lighting Solutions  
(formerly Eaton)

Brand: McGRAW-EDISON

Report Number: P1047751

Luminaire Tested: **GALN-SA5C-730-U-T2BC**

Issue Date: 07/10/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1047751  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 07/10/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: MCGRAW-EDISON  
Catalog Number: GALN-SA5C-730-U-T2BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 1050mA 5xLight Square PACKAGE  
70CRI 3000K FIXTURE w/ TYPE II ANGLED BACKLIGHT CONTROL  
Light Source: (70) 3000K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 26825.9 lumens  
Efficiency: N/A  
Efficacy: 113.7 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1' x H: 0')  
IES Classification: Type II - Short  
BUG Rating: B0 - U0 - G4

Input Watts (W): 236  
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

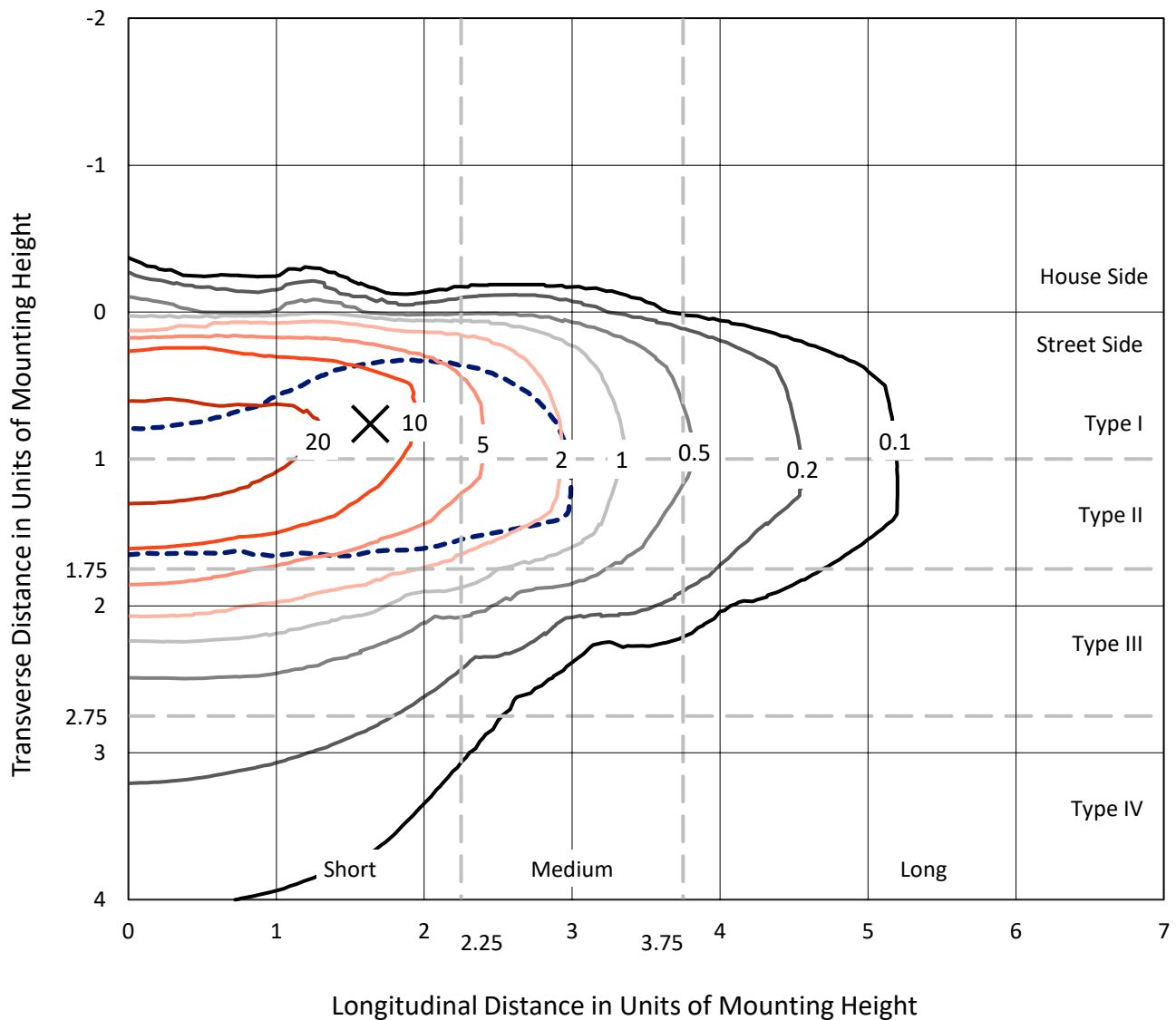


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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
 - - - 1/2 Max cd

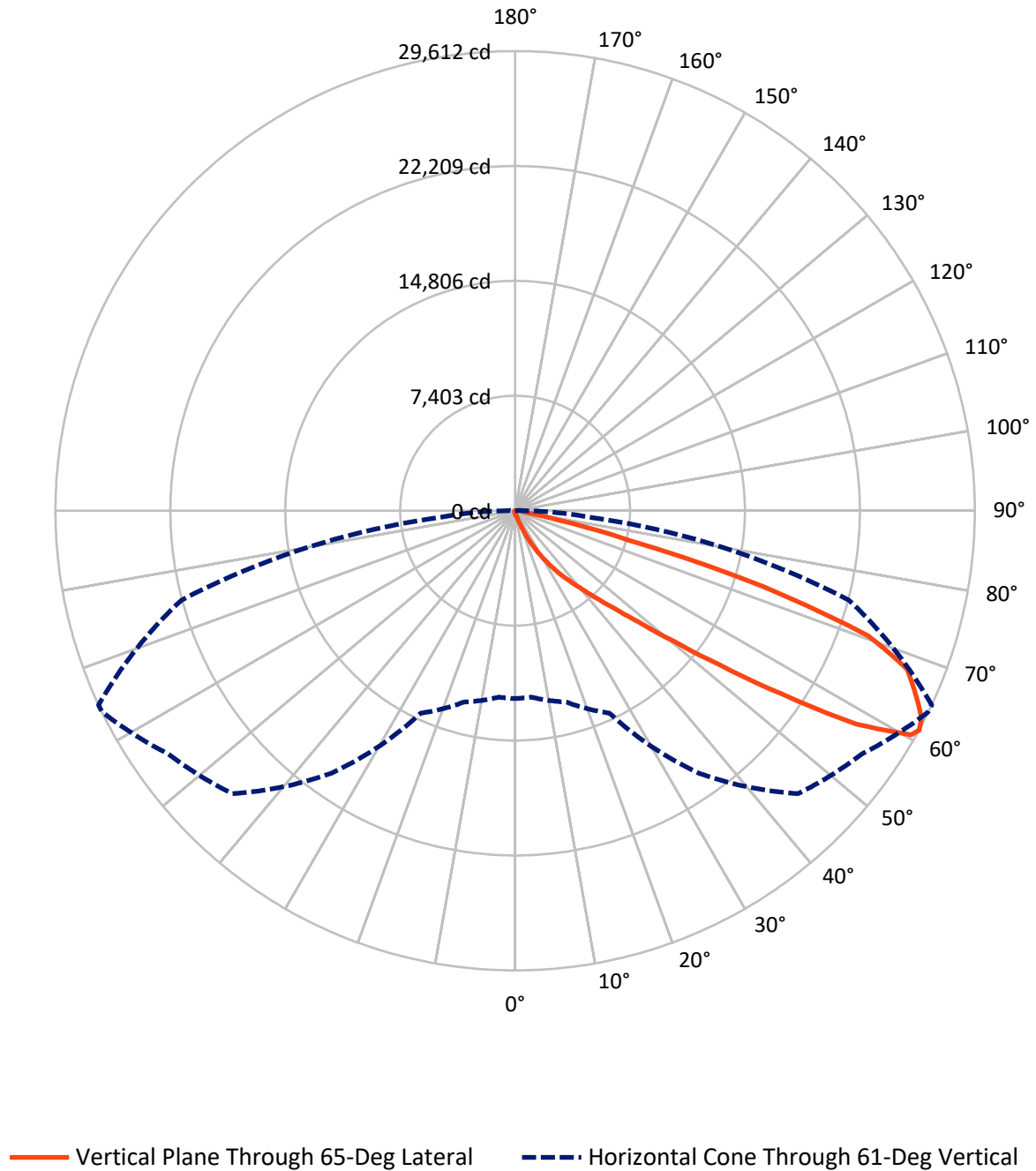


Based on 15 foot mounting height. Maximum calculated value = 35.5 fc  
 Type II - Short - N/A

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## Luminous Intensity Polar Plot



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**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 114.5    | 0.0    | 114.5   |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 26711.4  | 0.0    | 26711.4 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 26825.9  | 0.0    | 26825.9 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 20.9    | 0.1       |
| 10°-20°   | 220.6   | 0.8       |
| 20°-30°   | 791.7   | 3.0       |
| 30°-40°   | 2107.7  | 7.9       |
| 40°-50°   | 5537.0  | 20.6      |
| 50°-60°   | 8577.9  | 32.0      |
| 60°-70°   | 7192.4  | 26.8      |
| 70°-80°   | 2116.6  | 7.9       |
| 80°-90°   | 261.1   | 1.0       |
| 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°    | 26825.9 | 100.0     |
| 0°-180°   | 26825.9 | 100.0     |



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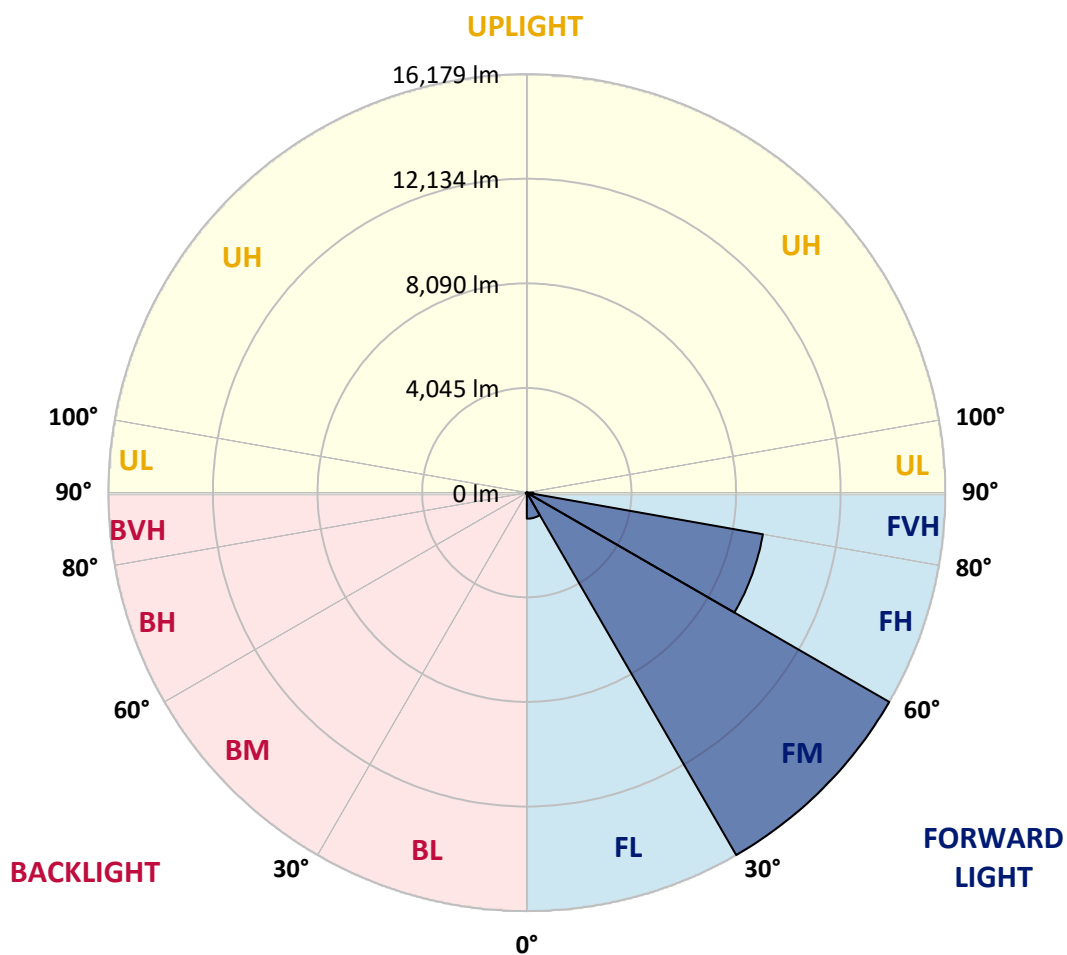
CATALOG NUMBER: GALN-SA5C-730-U-T2BC

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

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |          |
|------|-------------|---------|-----------|-------------------------|------|----------|
|      |             |         |           | B                       | U    | G        |
| FL   | (0°-30°)    | 1007.5  | 3.8       |                         |      |          |
| FM   | (30°-60°)   | 16179.1 | 60.3      |                         |      |          |
| FH   | (60°-80°)   | 9268.6  | 34.6      |                         |      | G4/12000 |
| FVH  | (80°-90°)   | 256.3   | 1.0       |                         |      | G3/500   |
| BL   | (0°-30°)    | 25.7    | 0.1       | B0/110                  |      |          |
| BM   | (30°-60°)   | 43.6    | 0.2       | B0/220                  |      |          |
| BH   | (60°-80°)   | 40.4    | 0.2       | B0/110                  |      | G0/110   |
| BVH  | (80°-90°)   | 4.8     | 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°    | 164.2   | 164.2   | 164.2   | 164.2   | 164.2   | 164.2   | 164.2   | 164.2   | 164.2   | 164.2   | 164.2  |
| 2.5°  | 199.3   | 201.1   | 197.5   | 190.1   | 184.5   | 184.5   | 182.7   | 177.2   | 177.2   | 171.6   | 167.9  |
| 5°    | 278.6   | 275.0   | 267.6   | 252.8   | 239.9   | 227.0   | 214.1   | 201.1   | 199.3   | 182.7   | 171.6  |
| 7.5°  | 455.8   | 459.5   | 435.5   | 389.4   | 350.6   | 300.8   | 254.7   | 227.0   | 223.3   | 195.6   | 173.5  |
| 10°   | 1000.2  | 972.5   | 917.1   | 738.1   | 607.1   | 457.6   | 339.5   | 263.9   | 260.2   | 210.4   | 177.2  |
| 12.5° | 1823.2  | 1801.0  | 1699.6  | 1515.0  | 1177.3  | 819.3   | 496.4   | 326.6   | 315.6   | 223.3   | 179.0  |
| 15°   | 2627.8  | 2592.7  | 2537.3  | 2351.0  | 1956.1  | 1468.9  | 811.9   | 446.6   | 417.0   | 241.7   | 177.2  |
| 17.5° | 3140.8  | 3146.3  | 3096.5  | 3017.1  | 2762.5  | 2173.8  | 1402.5  | 666.2   | 609.0   | 275.0   | 173.5  |
| 20°   | 3589.2  | 3576.3  | 3603.9  | 3561.5  | 3382.5  | 2954.4  | 2040.9  | 1055.5  | 957.7   | 328.5   | 175.3  |
| 22.5° | 4105.9  | 4137.2  | 4157.5  | 4148.3  | 3950.9  | 3585.5  | 2766.2  | 1579.6  | 1456.0  | 426.3   | 180.8  |
| 25°   | 4797.9  | 4794.2  | 4796.0  | 4772.0  | 4580.1  | 4174.1  | 3493.2  | 2231.0  | 2105.5  | 585.0   | 193.8  |
| 27.5° | 5523.1  | 5545.2  | 5554.5  | 5467.7  | 5216.8  | 4818.2  | 4166.8  | 2943.3  | 2795.7  | 839.6   | 210.4  |
| 30°   | 6514.0  | 6495.6  | 6453.1  | 6276.0  | 5971.5  | 5477.0  | 4831.1  | 3690.7  | 3535.7  | 1195.8  | 236.2  |
| 32.5° | 7850.1  | 7829.8  | 7615.7  | 7224.5  | 6768.7  | 6163.4  | 5499.1  | 4439.9  | 4251.7  | 1640.5  | 271.3  |
| 35°   | 10051.5 | 10082.9 | 9557.0  | 8543.9  | 7726.4  | 6988.3  | 6239.1  | 5185.4  | 5019.3  | 2188.6  | 319.2  |
| 37.5° | 13423.0 | 13251.3 | 12537.2 | 10747.2 | 8986.8  | 8018.0  | 6945.8  | 5938.3  | 5794.4  | 2864.0  | 382.0  |
| 40°   | 16698.4 | 16528.7 | 16322.0 | 14626.1 | 11177.2 | 9152.9  | 7934.9  | 6822.2  | 6635.8  | 3626.1  | 474.3  |
| 42.5° | 20141.8 | 20047.7 | 20038.5 | 18759.7 | 15174.2 | 10937.3 | 9125.2  | 7857.4  | 7698.7  | 4462.0  | 625.6  |
| 45°   | 22581.4 | 22487.2 | 22684.7 | 22908.0 | 20617.9 | 14760.8 | 11197.5 | 9202.7  | 8972.0  | 5477.0  | 867.3  |
| 47.5° | 22909.8 | 22913.5 | 23441.3 | 24140.7 | 24662.9 | 20675.1 | 13958.1 | 10985.3 | 10704.8 | 6929.2  | 1273.3 |
| 50°   | 21817.4 | 21859.8 | 22699.5 | 23950.6 | 25356.7 | 25637.2 | 18826.1 | 13572.4 | 13157.2 | 8650.9  | 1849.0 |
| 52.5° | 19737.7 | 19785.7 | 20955.6 | 23013.2 | 24718.3 | 26829.3 | 24557.7 | 16956.8 | 16478.8 | 10798.9 | 2661.0 |
| 55°   | 17864.7 | 17894.2 | 19235.8 | 21835.8 | 23948.8 | 26181.6 | 27960.5 | 21476.0 | 20848.6 | 13441.4 | 3461.8 |
| 57.5° | 16010.1 | 15941.8 | 16814.7 | 19791.2 | 23817.7 | 25386.3 | 28462.4 | 26626.3 | 25934.3 | 16329.4 | 4085.6 |
| 60°   | 13530.0 | 13415.6 | 14116.8 | 16010.1 | 22094.2 | 25908.5 | 27523.2 | 29475.5 | 29318.7 | 20350.4 | 4567.2 |
| 61°   | 12103.6 | 12055.6 | 12760.5 | 14384.4 | 20643.8 | 25775.6 | 27298.0 | 29595.5 | 29612.1 | 22252.9 | 4783.1 |
| 62.5° | 8643.5  | 8780.1  | 9857.8  | 11968.8 | 17290.8 | 24913.9 | 27327.6 | 29224.6 | 29388.8 | 24781.0 | 5342.2 |
| 65°   | 3842.0  | 4061.6  | 4899.4  | 6617.4  | 10055.2 | 20725.0 | 27065.5 | 28410.8 | 28329.6 | 25474.8 | 7268.8 |
| 67.5° | 2279.0  | 2312.2  | 2729.3  | 3749.7  | 5325.6  | 11147.7 | 23884.2 | 27334.9 | 27226.1 | 22177.2 | 9044.0 |
| 70°   | 1795.5  | 1812.1  | 1945.0  | 2352.8  | 3090.9  | 4270.1  | 13631.5 | 23649.8 | 24124.1 | 17982.8 | 8853.9 |
| 72.5° | 1703.2  | 1699.6  | 1718.0  | 1790.0  | 1946.8  | 2118.4  | 5277.7  | 15720.4 | 16685.5 | 12950.6 | 7423.8 |
| 75°   | 1681.1  | 1673.7  | 1655.3  | 1627.6  | 1409.8  | 1247.4  | 1635.0  | 6953.2  | 7512.4  | 8848.4  | 5589.5 |
| 77.5° | 1631.3  | 1633.1  | 1636.8  | 1561.2  | 1208.7  | 882.1   | 791.6   | 2231.0  | 2744.0  | 5615.4  | 3973.0 |
| 80°   | 1103.5  | 1120.1  | 1147.8  | 1118.3  | 1086.9  | 638.5   | 559.1   | 793.5   | 804.6   | 3151.8  | 2624.1 |
| 82.5° | 559.1   | 559.1   | 546.2   | 487.2   | 420.7   | 415.2   | 444.7   | 575.7   | 583.1   | 1594.4  | 1234.5 |
| 85°   | 337.7   | 356.1   | 363.5   | 330.3   | 302.6   | 278.6   | 339.5   | 457.6   | 474.3   | 618.2   | 287.9  |
| 87.5° | 75.7    | 77.5    | 84.9    | 112.6   | 164.2   | 223.3   | 315.6   | 418.9   | 426.3   | 396.7   | 35.1   |
| 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°    | 164.2  | 164.2 | 164.2 | 164.2 | 164.2 | 164.2 | 164.2 | 164.2 | 164.2 | 164.2 | 164.2 |
| 2.5°  | 166.1  | 162.4 | 160.5 | 155.0 | 149.5 | 143.9 | 140.2 | 138.4 | 140.2 | 142.1 | 142.1 |
| 5°    | 164.2  | 158.7 | 149.5 | 140.2 | 132.9 | 125.5 | 118.1 | 116.3 | 116.3 | 118.1 | 118.1 |
| 7.5°  | 164.2  | 155.0 | 142.1 | 131.0 | 119.9 | 108.9 | 103.3 | 99.6  | 101.5 | 101.5 | 101.5 |
| 10°   | 164.2  | 153.2 | 136.6 | 119.9 | 107.0 | 94.1  | 84.9  | 81.2  | 81.2  | 81.2  | 81.2  |
| 12.5° | 162.4  | 151.3 | 131.0 | 110.7 | 92.3  | 77.5  | 66.4  | 60.9  | 62.7  | 62.7  | 62.7  |
| 15°   | 158.7  | 145.8 | 123.6 | 94.1  | 73.8  | 59.1  | 48.0  | 42.4  | 44.3  | 48.0  | 49.8  |
| 17.5° | 153.2  | 140.2 | 110.7 | 79.3  | 59.1  | 44.3  | 33.2  | 29.5  | 31.4  | 36.9  | 36.9  |
| 20°   | 151.3  | 134.7 | 97.8  | 64.6  | 44.3  | 31.4  | 22.1  | 18.5  | 20.3  | 27.7  | 29.5  |
| 22.5° | 151.3  | 131.0 | 88.6  | 53.5  | 33.2  | 20.3  | 12.9  | 7.4   | 7.4   | 12.9  | 12.9  |
| 25°   | 153.2  | 129.2 | 81.2  | 44.3  | 24.0  | 14.8  | 7.4   | 3.7   | 7.4   | 20.3  | 24.0  |
| 27.5° | 156.9  | 127.3 | 77.5  | 36.9  | 18.5  | 12.9  | 5.5   | 12.9  | 22.1  | 22.1  | 22.1  |
| 30°   | 160.5  | 123.6 | 72.0  | 31.4  | 16.6  | 9.2   | 9.2   | 18.5  | 18.5  | 22.1  | 24.0  |
| 32.5° | 166.1  | 121.8 | 68.3  | 27.7  | 12.9  | 7.4   | 12.9  | 11.1  | 11.1  | 12.9  | 14.8  |
| 35°   | 177.2  | 123.6 | 64.6  | 27.7  | 12.9  | 9.2   | 11.1  | 5.5   | 3.7   | 3.7   | 3.7   |
| 37.5° | 191.9  | 125.5 | 59.1  | 24.0  | 11.1  | 11.1  | 5.5   | 0.0   | 0.0   | 0.0   | 0.0   |
| 40°   | 215.9  | 131.0 | 55.4  | 22.1  | 9.2   | 9.2   | 1.8   | 0.0   | 0.0   | 0.0   | 0.0   |
| 42.5° | 256.5  | 142.1 | 53.5  | 20.3  | 9.2   | 7.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 45°   | 337.7  | 167.9 | 49.8  | 18.5  | 9.2   | 3.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 47.5° | 485.3  | 228.8 | 48.0  | 14.8  | 5.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 50°   | 708.6  | 310.0 | 46.1  | 12.9  | 1.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 52.5° | 904.2  | 326.6 | 31.4  | 11.1  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 55°   | 926.4  | 225.1 | 24.0  | 7.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 57.5° | 738.1  | 145.8 | 20.3  | 5.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 60°   | 559.1  | 110.7 | 18.5  | 1.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 61°   | 537.0  | 99.6  | 18.5  | 1.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 62.5° | 592.4  | 86.7  | 16.6  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 65°   | 963.3  | 72.0  | 14.8  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 67.5° | 1673.7 | 62.7  | 12.9  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 70°   | 2114.8 | 59.1  | 11.1  | 1.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 72.5° | 1843.5 | 53.5  | 11.1  | 3.7   | 1.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 75°   | 1109.0 | 46.1  | 11.1  | 7.4   | 3.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 77.5° | 581.3  | 35.1  | 11.1  | 9.2   | 5.5   | 1.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 80°   | 282.3  | 31.4  | 12.9  | 9.2   | 7.4   | 3.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 82.5° | 110.7  | 25.8  | 14.8  | 12.9  | 9.2   | 5.5   | 1.8   | 0.0   | 0.0   | 0.0   | 0.0   |
| 85°   | 49.8   | 22.1  | 16.6  | 14.8  | 12.9  | 7.4   | 1.8   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 25.8   | 20.3  | 18.5  | 16.6  | 12.9  | 9.2   | 3.7   | 0.0   | 0.0   | 0.0   | 0.0   |
| 90°   | 0.0    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

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



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

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-4

Test Date: 10/10/2024

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

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

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-4  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 10/15/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: McGraw-Edison  
 Catalog Number: **GSS-SB1A-730-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI  
 3000K CCT 26 LEDS

### Spectral Parameters

CCT (K): 2985  
 CIE  $u'$ : 0.2504  
 CIE  $v'$ : 0.5243  
 Duv: 0.0019  
 CIE x: 0.4408  
 CIE y: 0.4101  
 CIE z: 0.1491  
 Peak Wavelength (nm): 595  
 Dominant Wavelength (nm): 582  
 Purity: 55.41818  
 R<sub>f</sub>: 73.8  
 R<sub>g</sub>: 94.4

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



### Test Conditions

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

REPORT NUMBER: SP1-2407-184-4

| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | IN0058                | 6/18/2024        | 12/18/2024           |
| Power Meter                    | INXT2011004           | 2/8/2024         | 2/8/2025             |
| AC Power Source                | IN0063                | 10/24/2023       | 10/24/2024           |
| DC Power Source                | IN0208                | 10/24/2023       | 10/24/2024           |
| Sphere Thermometer             | IN0085                | 10/24/2023       | 10/24/2024           |
| Room Thermometer               | IN0046                | 10/24/2023       | 10/24/2024           |

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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

REPORT NUMBER: SP1-2407-184-4

### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

| $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|
| 360               | 0                             | NR                             | 490               | 142                           | NR                             | 620               | 803                           | NR                             | 750               | 17                            | NR                             | 880               | 0                             | NR                             |
| 365               | 0                             | NR                             | 495               | 189                           | NR                             | 625               | 734                           | NR                             | 755               | 15                            | NR                             | 885               | 0                             | NR                             |
| 370               | 0                             | NR                             | 500               | 240                           | NR                             | 630               | 670                           | NR                             | 760               | 13                            | NR                             | 890               | 0                             | NR                             |
| 375               | 0                             | NR                             | 505               | 290                           | NR                             | 635               | 600                           | NR                             | 765               | 11                            | NR                             | 895               | 0                             | NR                             |
| 380               | 0                             | NR                             | 510               | 335                           | NR                             | 640               | 535                           | NR                             | 770               | 9                             | NR                             | 900               | 0                             | NR                             |
| 385               | 0                             | NR                             | 515               | 375                           | NR                             | 645               | 473                           | NR                             | 775               | 8                             | NR                             | 905               | 0                             | NR                             |
| 390               | 1                             | NR                             | 520               | 408                           | NR                             | 650               | 415                           | NR                             | 780               | 7                             | NR                             | 910               | 0                             | NR                             |
| 395               | 2                             | NR                             | 525               | 434                           | NR                             | 655               | 362                           | NR                             | 785               | 6                             | NR                             | 915               | 0                             | NR                             |
| 400               | 4                             | NR                             | 530               | 461                           | NR                             | 660               | 313                           | NR                             | 790               | 5                             | NR                             | 920               | 0                             | NR                             |
| 405               | 8                             | NR                             | 535               | 486                           | NR                             | 665               | 271                           | NR                             | 795               | 4                             | NR                             | 925               | 0                             | NR                             |
| 410               | 16                            | NR                             | 540               | 514                           | NR                             | 670               | 231                           | NR                             | 800               | 4                             | NR                             | 930               | 0                             | NR                             |
| 415               | 33                            | NR                             | 545               | 549                           | NR                             | 675               | 198                           | NR                             | 805               | 3                             | NR                             | 935               | 0                             | NR                             |
| 420               | 69                            | NR                             | 550               | 591                           | NR                             | 680               | 169                           | NR                             | 810               | 3                             | NR                             | 940               | 0                             | NR                             |
| 425               | 131                           | NR                             | 555               | 640                           | NR                             | 685               | 144                           | NR                             | 815               | 2                             | NR                             | 945               | 0                             | NR                             |
| 430               | 227                           | NR                             | 560               | 695                           | NR                             | 690               | 123                           | NR                             | 820               | 2                             | NR                             | 950               | 0                             | NR                             |
| 435               | 369                           | NR                             | 565               | 757                           | NR                             | 695               | 104                           | NR                             | 825               | 2                             | NR                             | 955               | 0                             | NR                             |
| 440               | 517                           | NR                             | 570               | 822                           | NR                             | 700               | 88                            | NR                             | 830               | 2                             | NR                             | 960               | 0                             | NR                             |
| 445               | 498                           | NR                             | 575               | 882                           | NR                             | 705               | 75                            | NR                             | 835               | 1                             | NR                             | 965               | 0                             | NR                             |
| 450               | 315                           | NR                             | 580               | 935                           | NR                             | 710               | 63                            | NR                             | 840               | 1                             | NR                             | 970               | 0                             | NR                             |
| 455               | 204                           | NR                             | 585               | 972                           | NR                             | 715               | 54                            | NR                             | 845               | 1                             | NR                             | 975               | 0                             | NR                             |
| 460               | 145                           | NR                             | 590               | 996                           | NR                             | 720               | 46                            | NR                             | 850               | 1                             | NR                             | 980               | 0                             | NR                             |
| 465               | 100                           | NR                             | 595               | 1000                          | NR                             | 725               | 39                            | NR                             | 855               | 1                             | NR                             | 985               | 0                             | NR                             |
| 470               | 78                            | NR                             | 600               | 989                           | NR                             | 730               | 33                            | NR                             | 860               | 1                             | NR                             | 990               | 0                             | NR                             |
| 475               | 76                            | NR                             | 605               | 960                           | NR                             | 735               | 28                            | NR                             | 865               | 1                             | NR                             | 995               | 0                             | NR                             |
| 480               | 83                            | NR                             | 610               | 918                           | NR                             | 740               | 24                            | NR                             | 870               | 1                             | NR                             | 1000              | 0                             | NR                             |
| 485               | 105                           | NR                             | 615               | 864                           | NR                             | 745               | 20                            | NR                             | 875               | 1                             | NR                             |                   |                               |                                |

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### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.19

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

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**Melanopic Flux vs. Wavelength**

**Melanopic Lumens: NR**
**M/P: 2.13**

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

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TM-30-18

### Summary

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



### Color Vector Graphics



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

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



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)