

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



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

Test Report Prepared for  
Cooper Lighting Solutions  
(formerly Eaton)

Brand: STREETWORKS

Report Number: P1063321

Luminaire Tested: **GLAN-SA7A-722-U-T2BC**

Issue Date: 08/07/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1063321  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 08/07/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: GLAN-SA7A-722-U-T2BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 615mA 7xLight Square PACKAGE  
70CRI 2200K FIXTURE w/ TYPE II ANGLED BACKLIGHT CONTROL  
Light Source: (98) 2200K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 18172.9 lumens  
Efficiency: N/A  
Efficacy: 94.1 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1.5' x H: 0')  
IES Classification: Type II - Short  
BUG Rating: B0 - U0 - G3

Input Watts (W): 193.1  
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



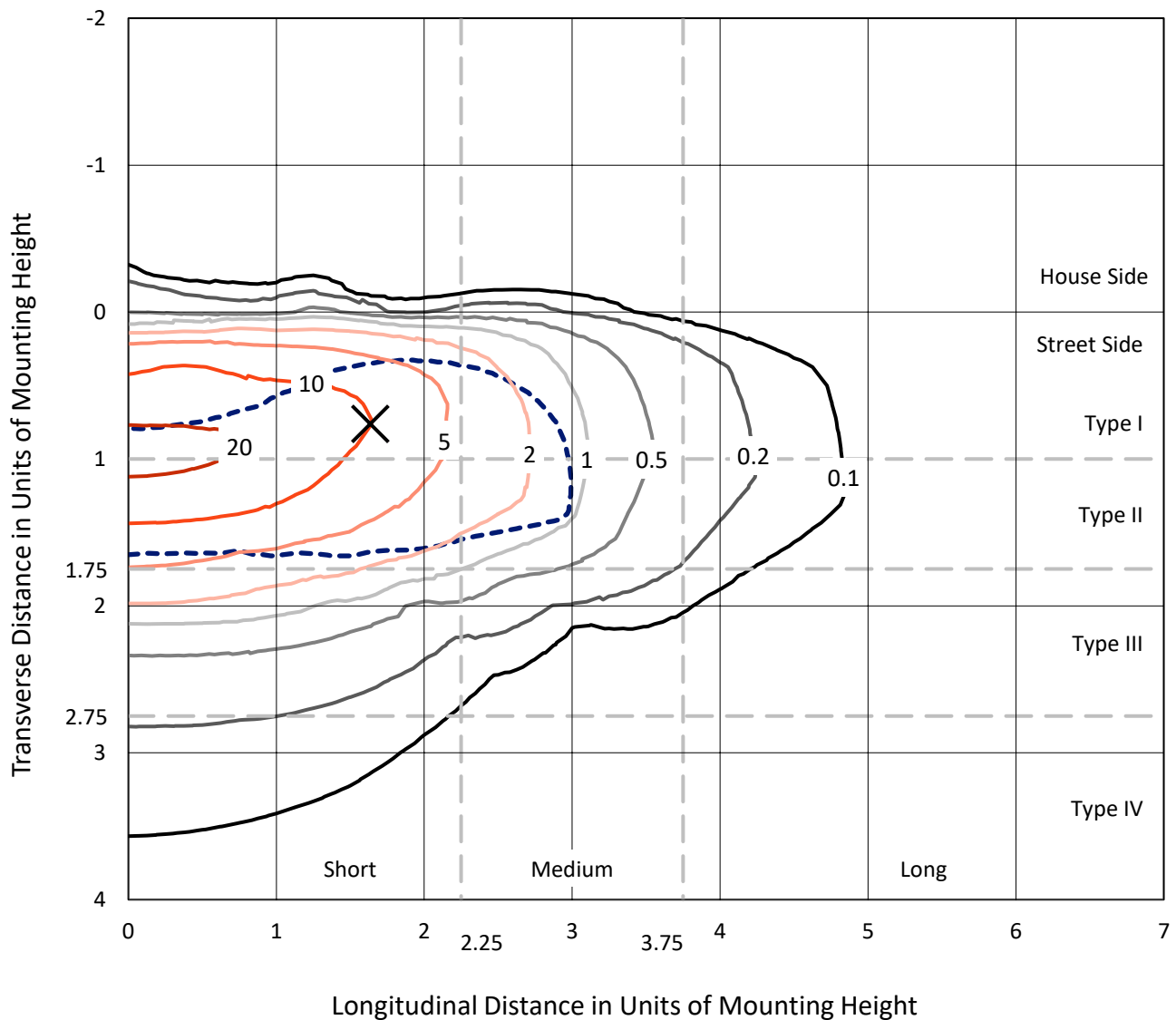
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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd

--- 1/2 Max cd

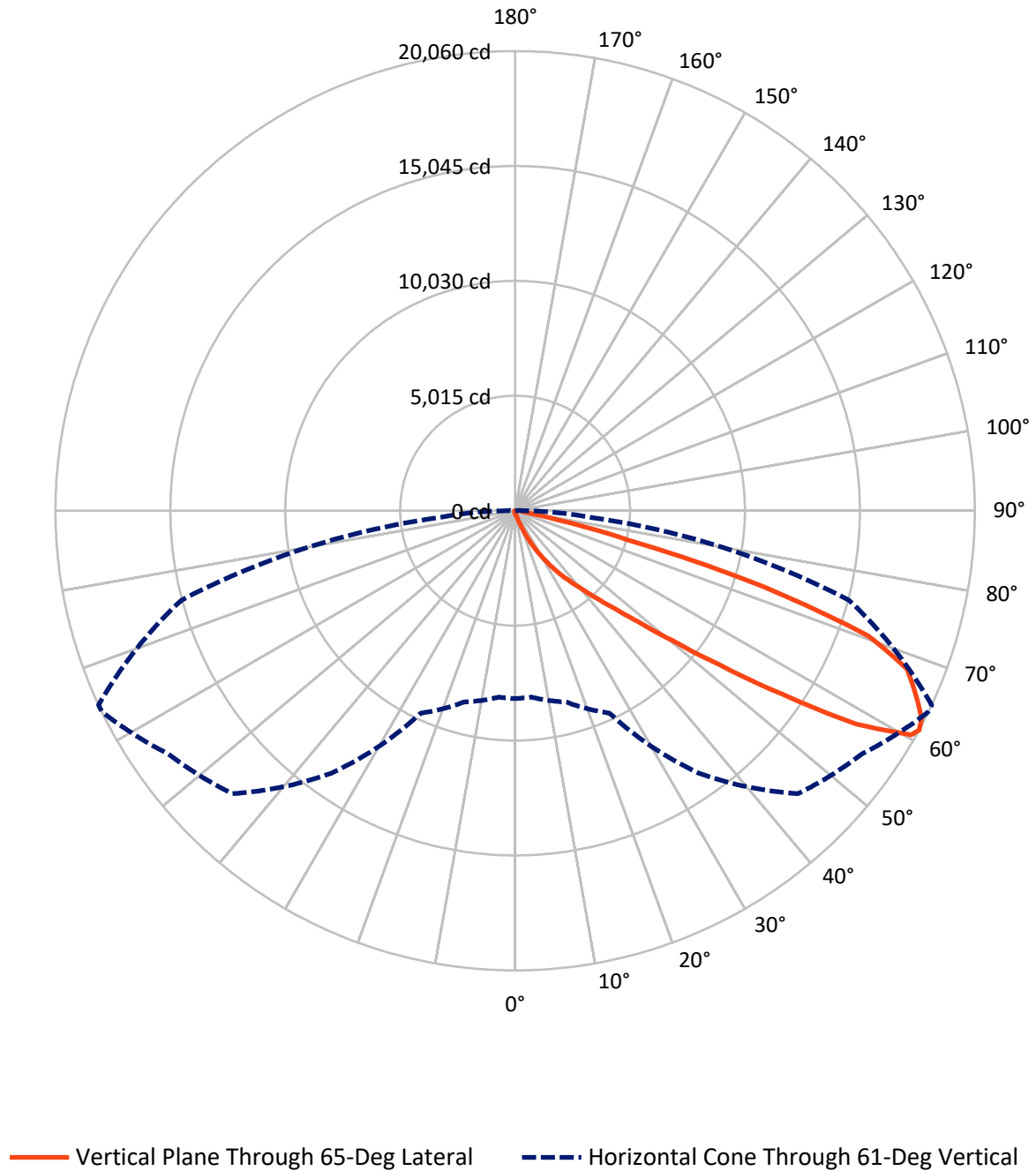


Based on 15 foot mounting height. Maximum calculated value = 24 fc  
 Type II - Short - N/A

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## Luminous Intensity Polar Plot



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CATALOG NUMBER: GLAN-SA7A-722-U-T2BC

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 77.6     | 0.0    | 77.6    |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 18095.3  | 0.0    | 18095.3 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 18172.9  | 0.0    | 18172.9 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 14.2    | 0.1       |
| 10°-20°   | 149.4   | 0.8       |
| 20°-30°   | 536.3   | 3.0       |
| 30°-40°   | 1427.9  | 7.9       |
| 40°-50°   | 3751.0  | 20.6      |
| 50°-60°   | 5811.0  | 32.0      |
| 60°-70°   | 4872.4  | 26.8      |
| 70°-80°   | 1433.9  | 7.9       |
| 80°-90°   | 176.9   | 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°    | 18172.9 | 100.0     |
| 0°-180°   | 18172.9 | 100.0     |



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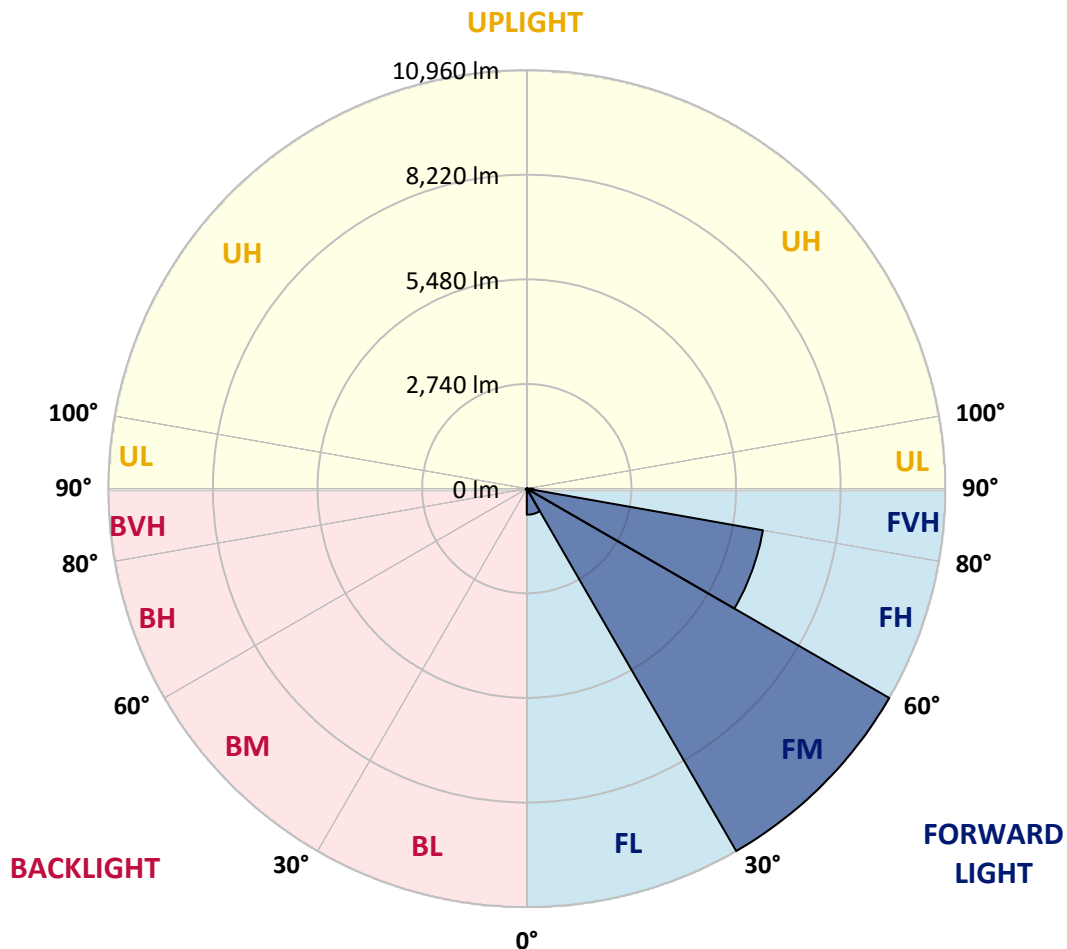
CATALOG NUMBER: GLAN-SA7A-722-U-T2BC

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

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|---------|-----------|-------------------------|------|---------|
|      |             |         |           | B                       | U    | G       |
| FL   | (0°-30°)    | 682.5   | 3.8       |                         |      |         |
| FM   | (30°-60°)   | 10960.3 | 60.3      |                         |      |         |
| FH   | (60°-80°)   | 6278.9  | 34.6      |                         |      | G3/7500 |
| FVH  | (80°-90°)   | 173.6   | 1.0       |                         |      | G2/225  |
| BL   | (0°-30°)    | 17.4    | 0.1       | B0/110                  |      |         |
| BM   | (30°-60°)   | 29.5    | 0.2       | B0/220                  |      |         |
| BH   | (60°-80°)   | 27.4    | 0.2       | B0/110                  |      | G0/110  |
| BVH  | (80°-90°)   | 3.3     | 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-G3**

Type II Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 45°     | 55°     | 64°     | 65°     | 75°     | 85°    |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| 0°    | 111.3   | 111.3   | 111.3   | 111.3   | 111.3   | 111.3   | 111.3   | 111.3   | 111.3   | 111.3   | 111.3  |
| 2.5°  | 135.0   | 136.3   | 133.8   | 128.8   | 125.0   | 125.0   | 123.8   | 120.0   | 120.0   | 116.3   | 113.8  |
| 5°    | 188.8   | 186.3   | 181.3   | 171.3   | 162.5   | 153.8   | 145.0   | 136.3   | 135.0   | 123.8   | 116.3  |
| 7.5°  | 308.8   | 311.3   | 295.0   | 263.8   | 237.5   | 203.8   | 172.5   | 153.8   | 151.3   | 132.5   | 117.5  |
| 10°   | 677.6   | 658.8   | 621.3   | 500.0   | 411.3   | 310.0   | 230.0   | 178.8   | 176.3   | 142.5   | 120.0  |
| 12.5° | 1235.1  | 1220.1  | 1151.3  | 1026.3  | 797.6   | 555.0   | 336.3   | 221.3   | 213.8   | 151.3   | 121.3  |
| 15°   | 1780.1  | 1756.4  | 1718.9  | 1592.6  | 1325.1  | 995.1   | 550.0   | 302.5   | 282.5   | 163.8   | 120.0  |
| 17.5° | 2127.7  | 2131.4  | 2097.7  | 2043.9  | 1871.4  | 1472.6  | 950.1   | 451.3   | 412.5   | 186.3   | 117.5  |
| 20°   | 2431.4  | 2422.7  | 2441.4  | 2412.7  | 2291.4  | 2001.4  | 1382.6  | 715.1   | 648.8   | 222.5   | 118.8  |
| 22.5° | 2781.5  | 2802.7  | 2816.5  | 2810.2  | 2676.5  | 2428.9  | 1873.9  | 1070.1  | 986.3   | 288.8   | 122.5  |
| 25°   | 3250.3  | 3247.8  | 3249.0  | 3232.8  | 3102.7  | 2827.7  | 2366.4  | 1511.4  | 1426.4  | 396.3   | 131.3  |
| 27.5° | 3741.5  | 3756.5  | 3762.8  | 3704.0  | 3534.0  | 3264.0  | 2822.7  | 1993.9  | 1893.9  | 568.8   | 142.5  |
| 30°   | 4412.8  | 4400.3  | 4371.6  | 4251.6  | 4045.3  | 3710.3  | 3272.8  | 2500.2  | 2395.2  | 810.1   | 160.0  |
| 32.5° | 5317.9  | 5304.2  | 5159.2  | 4894.1  | 4585.4  | 4175.3  | 3725.3  | 3007.7  | 2880.2  | 1111.3  | 183.8  |
| 35°   | 6809.3  | 6830.5  | 6474.3  | 5787.9  | 5234.2  | 4734.1  | 4226.6  | 3512.8  | 3400.3  | 1482.6  | 216.3  |
| 37.5° | 9093.2  | 8976.9  | 8493.2  | 7280.6  | 6088.0  | 5431.7  | 4705.4  | 4022.8  | 3925.3  | 1940.2  | 258.8  |
| 40°   | 11312.1 | 11197.1 | 11057.1 | 9908.3  | 7571.8  | 6200.5  | 5375.4  | 4621.6  | 4495.3  | 2456.4  | 321.3  |
| 42.5° | 13644.8 | 13581.1 | 13574.8 | 12708.5 | 10279.5 | 7409.3  | 6181.7  | 5322.9  | 5215.4  | 3022.7  | 423.8  |
| 45°   | 15297.4 | 15233.7 | 15367.4 | 15518.7 | 13967.3 | 9999.5  | 7585.6  | 6234.2  | 6078.0  | 3710.3  | 587.5  |
| 47.5° | 15520.0 | 15522.5 | 15880.0 | 16353.8 | 16707.5 | 14006.1 | 9455.7  | 7441.8  | 7251.8  | 4694.1  | 862.6  |
| 50°   | 14779.9 | 14808.7 | 15377.4 | 16225.0 | 17177.6 | 17367.6 | 12753.5 | 9194.5  | 8913.2  | 5860.5  | 1252.6 |
| 52.5° | 13371.0 | 13403.5 | 14196.1 | 15590.0 | 16745.1 | 18175.2 | 16636.3 | 11487.1 | 11163.4 | 7315.6  | 1802.6 |
| 55°   | 12102.2 | 12122.2 | 13031.0 | 14792.4 | 16223.8 | 17736.4 | 18941.5 | 14548.6 | 14123.6 | 9105.7  | 2345.2 |
| 57.5° | 10845.8 | 10799.6 | 11390.9 | 13407.3 | 16135.0 | 17197.6 | 19281.5 | 18037.7 | 17568.9 | 11062.1 | 2767.7 |
| 60°   | 9165.7  | 9088.2  | 9563.2  | 10845.8 | 14967.4 | 17551.4 | 18645.2 | 19967.8 | 19861.5 | 13786.1 | 3094.0 |
| 61°   | 8199.4  | 8166.9  | 8644.4  | 9744.5  | 13984.8 | 17461.4 | 18492.7 | 20049.1 | 20060.3 | 15074.9 | 3240.3 |
| 62.5° | 5855.5  | 5948.0  | 6678.0  | 8108.1  | 11713.4 | 16877.6 | 18512.7 | 19797.8 | 19909.0 | 16787.6 | 3619.0 |
| 65°   | 2602.7  | 2751.5  | 3319.0  | 4482.8  | 6811.8  | 14039.8 | 18335.2 | 19246.5 | 19191.5 | 17257.6 | 4924.1 |
| 67.5° | 1543.9  | 1566.4  | 1848.9  | 2540.2  | 3607.8  | 7551.8  | 16180.0 | 18517.7 | 18443.9 | 15023.7 | 6126.7 |
| 70°   | 1216.3  | 1227.6  | 1317.6  | 1593.9  | 2093.9  | 2892.7  | 9234.5  | 16021.2 | 16342.5 | 12182.2 | 5998.0 |
| 72.5° | 1153.8  | 1151.3  | 1163.8  | 1212.6  | 1318.9  | 1435.1  | 3575.3  | 10649.6 | 11303.4 | 8773.2  | 5029.1 |
| 75°   | 1138.8  | 1133.8  | 1121.3  | 1102.6  | 955.1   | 845.1   | 1107.6  | 4710.4  | 5089.1  | 5994.2  | 3786.5 |
| 77.5° | 1105.1  | 1106.3  | 1108.8  | 1057.6  | 818.8   | 597.5   | 536.3   | 1511.4  | 1858.9  | 3804.0  | 2691.5 |
| 80°   | 747.6   | 758.8   | 777.6   | 757.6   | 736.3   | 432.5   | 378.8   | 537.5   | 545.0   | 2135.2  | 1777.6 |
| 82.5° | 378.8   | 378.8   | 370.0   | 330.0   | 285.0   | 281.3   | 301.3   | 390.0   | 395.0   | 1080.1  | 836.3  |
| 85°   | 228.8   | 241.3   | 246.3   | 223.8   | 205.0   | 188.8   | 230.0   | 310.0   | 321.3   | 418.8   | 195.0  |
| 87.5° | 51.3    | 52.5    | 57.5    | 76.3    | 111.3   | 151.3   | 213.8   | 283.8   | 288.8   | 268.8   | 23.8   |
| 90°   | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0    |

REPORT NUMBER: P1063321

CATALOG NUMBER: GLAN-SA7A-722-U-T2BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 111.3  | 111.3 | 111.3 | 111.3 | 111.3 | 111.3 | 111.3 | 111.3 | 111.3 | 111.3 | 111.3 |
| 2.5°  | 112.5  | 110.0 | 108.8 | 105.0 | 101.3 | 97.5  | 95.0  | 93.8  | 95.0  | 96.3  | 96.3  |
| 5°    | 111.3  | 107.5 | 101.3 | 95.0  | 90.0  | 85.0  | 80.0  | 78.8  | 78.8  | 80.0  | 80.0  |
| 7.5°  | 111.3  | 105.0 | 96.3  | 88.8  | 81.3  | 73.8  | 70.0  | 67.5  | 68.8  | 68.8  | 68.8  |
| 10°   | 111.3  | 103.8 | 92.5  | 81.3  | 72.5  | 63.8  | 57.5  | 55.0  | 55.0  | 55.0  | 55.0  |
| 12.5° | 110.0  | 102.5 | 88.8  | 75.0  | 62.5  | 52.5  | 45.0  | 41.3  | 42.5  | 42.5  | 42.5  |
| 15°   | 107.5  | 98.8  | 83.8  | 63.8  | 50.0  | 40.0  | 32.5  | 28.8  | 30.0  | 32.5  | 33.8  |
| 17.5° | 103.8  | 95.0  | 75.0  | 53.8  | 40.0  | 30.0  | 22.5  | 20.0  | 21.3  | 25.0  | 25.0  |
| 20°   | 102.5  | 91.3  | 66.3  | 43.8  | 30.0  | 21.3  | 15.0  | 12.5  | 13.8  | 18.8  | 20.0  |
| 22.5° | 102.5  | 88.8  | 60.0  | 36.3  | 22.5  | 13.8  | 8.8   | 5.0   | 5.0   | 8.8   | 8.8   |
| 25°   | 103.8  | 87.5  | 55.0  | 30.0  | 16.3  | 10.0  | 5.0   | 2.5   | 5.0   | 13.8  | 16.3  |
| 27.5° | 106.3  | 86.3  | 52.5  | 25.0  | 12.5  | 8.8   | 3.8   | 8.8   | 15.0  | 15.0  | 15.0  |
| 30°   | 108.8  | 83.8  | 48.8  | 21.3  | 11.3  | 6.3   | 6.3   | 12.5  | 12.5  | 15.0  | 16.3  |
| 32.5° | 112.5  | 82.5  | 46.3  | 18.8  | 8.8   | 5.0   | 8.8   | 7.5   | 7.5   | 8.8   | 10.0  |
| 35°   | 120.0  | 83.8  | 43.8  | 18.8  | 8.8   | 6.3   | 7.5   | 3.8   | 2.5   | 2.5   | 2.5   |
| 37.5° | 130.0  | 85.0  | 40.0  | 16.3  | 7.5   | 7.5   | 3.8   | 0.0   | 0.0   | 0.0   | 0.0   |
| 40°   | 146.3  | 88.8  | 37.5  | 15.0  | 6.3   | 6.3   | 1.3   | 0.0   | 0.0   | 0.0   | 0.0   |
| 42.5° | 173.8  | 96.3  | 36.3  | 13.8  | 6.3   | 5.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 45°   | 228.8  | 113.8 | 33.8  | 12.5  | 6.3   | 2.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 47.5° | 328.8  | 155.0 | 32.5  | 10.0  | 3.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 50°   | 480.0  | 210.0 | 31.3  | 8.8   | 1.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 52.5° | 612.5  | 221.3 | 21.3  | 7.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 55°   | 627.5  | 152.5 | 16.3  | 5.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 57.5° | 500.0  | 98.8  | 13.8  | 3.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 60°   | 378.8  | 75.0  | 12.5  | 1.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 61°   | 363.8  | 67.5  | 12.5  | 1.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 62.5° | 401.3  | 58.8  | 11.3  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 65°   | 652.6  | 48.8  | 10.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 67.5° | 1133.8 | 42.5  | 8.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 70°   | 1432.6 | 40.0  | 7.5   | 1.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 72.5° | 1248.8 | 36.3  | 7.5   | 2.5   | 1.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 75°   | 751.3  | 31.3  | 7.5   | 5.0   | 2.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 77.5° | 393.8  | 23.8  | 7.5   | 6.3   | 3.8   | 1.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 80°   | 191.3  | 21.3  | 8.8   | 6.3   | 5.0   | 2.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 82.5° | 75.0   | 17.5  | 10.0  | 8.8   | 6.3   | 3.8   | 1.3   | 0.0   | 0.0   | 0.0   | 0.0   |
| 85°   | 33.8   | 15.0  | 11.3  | 10.0  | 8.8   | 5.0   | 1.3   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 17.5   | 13.8  | 12.5  | 11.3  | 8.8   | 6.3   | 2.5   | 0.0   | 0.0   | 0.0   | 0.0   |
| 90°   | 0.0    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

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

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-2

Test Date: 10/09/2024

Luminaire Tested: GSS-SB1A-722-U-5WQ

Data in this report applies to families of products including GSS-SB1A-722-U-5WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-2  
 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-722-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI  
 2200K CCT 26 LEDS

### Spectral Parameters

|                           |          |           |      |      |       |
|---------------------------|----------|-----------|------|------|-------|
| CCT (K):                  | 2160     | CRI (Ra): | 71.9 |      |       |
| CIE u':                   | 0.2927   | R1:       | 68.7 | R9:  | -17.8 |
| CIE v':                   | 0.5388   | R2:       | 82.6 | R10: | 60.5  |
| Duv:                      | 0.0015   | R3:       | 95.5 | R11: | 60.2  |
| CIE x:                    | 0.5130   | R4:       | 66.4 | R12: | 48.2  |
| CIE y:                    | 0.4197   | R5:       | 65.4 | R13: | 70.7  |
| CIE z:                    | 0.0674   | R6:       | 75.9 | R14: | 96.8  |
| Peak Wavelength (nm):     | 609      | R7:       | 77.2 | R15: | 61.8  |
| Dominant Wavelength (nm): | 587      | R8:       | 43.5 |      |       |
| Purity:                   | 79.96089 |           |      |      |       |
| Rf:                       | 70.6     |           |      |      |       |
| Rg:                       | 97.6     |           |      |      |       |



### Test Conditions

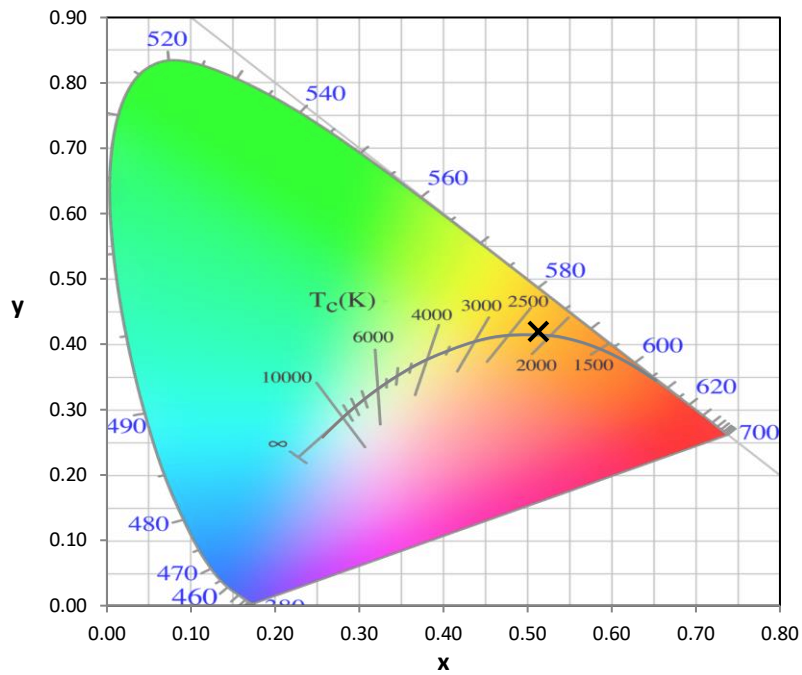
Stabilization Time: 21M  
 Operation Time: 1H 21M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-2

| 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 2200K 7-step quadrangle

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### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

| λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 27                          | NR               | 620       | 966                         | NR               | 750       | 46                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 42                          | NR               | 625       | 930                         | NR               | 755       | 39                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 67                          | NR               | 630       | 888                         | NR               | 760       | 34                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 101                         | NR               | 635       | 835                         | NR               | 765       | 30                          | NR               | 895       | 1                           | NR               |
| 380       | 0                           | NR               | 510       | 139                         | NR               | 640       | 778                         | NR               | 770       | 26                          | NR               | 900       | 1                           | NR               |
| 385       | 0                           | NR               | 515       | 183                         | NR               | 645       | 717                         | NR               | 775       | 22                          | NR               | 905       | 1                           | NR               |
| 390       | 0                           | NR               | 520       | 224                         | NR               | 650       | 656                         | NR               | 780       | 19                          | NR               | 910       | 1                           | NR               |
| 395       | 0                           | NR               | 525       | 262                         | NR               | 655       | 595                         | NR               | 785       | 17                          | NR               | 915       | 1                           | NR               |
| 400       | 1                           | NR               | 530       | 299                         | NR               | 660       | 536                         | NR               | 790       | 15                          | NR               | 920       | 1                           | NR               |
| 405       | 3                           | NR               | 535       | 332                         | NR               | 665       | 480                         | NR               | 795       | 13                          | NR               | 925       | 1                           | NR               |
| 410       | 7                           | NR               | 540       | 365                         | NR               | 670       | 425                         | NR               | 800       | 11                          | NR               | 930       | 1                           | NR               |
| 415       | 17                          | NR               | 545       | 400                         | NR               | 675       | 376                         | NR               | 805       | 10                          | NR               | 935       | 0                           | NR               |
| 420       | 36                          | NR               | 550       | 437                         | NR               | 680       | 332                         | NR               | 810       | 8                           | NR               | 940       | 0                           | NR               |
| 425       | 67                          | NR               | 555       | 479                         | NR               | 685       | 291                         | NR               | 815       | 8                           | NR               | 945       | 0                           | NR               |
| 430       | 105                         | NR               | 560       | 525                         | NR               | 690       | 255                         | NR               | 820       | 7                           | NR               | 950       | 0                           | NR               |
| 435       | 141                         | NR               | 565       | 579                         | NR               | 695       | 221                         | NR               | 825       | 6                           | NR               | 955       | 0                           | NR               |
| 440       | 169                         | NR               | 570       | 639                         | NR               | 700       | 192                         | NR               | 830       | 5                           | NR               | 960       | 0                           | NR               |
| 445       | 173                         | NR               | 575       | 703                         | NR               | 705       | 167                         | NR               | 835       | 4                           | NR               | 965       | 0                           | NR               |
| 450       | 136                         | NR               | 580       | 769                         | NR               | 710       | 144                         | NR               | 840       | 4                           | NR               | 970       | 0                           | NR               |
| 455       | 80                          | NR               | 585       | 832                         | NR               | 715       | 125                         | NR               | 845       | 3                           | NR               | 975       | 0                           | NR               |
| 460       | 45                          | NR               | 590       | 890                         | NR               | 720       | 109                         | NR               | 850       | 3                           | NR               | 980       | 0                           | NR               |
| 465       | 32                          | NR               | 595       | 937                         | NR               | 725       | 94                          | NR               | 855       | 3                           | NR               | 985       | 0                           | NR               |
| 470       | 23                          | NR               | 600       | 972                         | NR               | 730       | 81                          | NR               | 860       | 2                           | NR               | 990       | 0                           | NR               |
| 475       | 18                          | NR               | 605       | 992                         | NR               | 735       | 70                          | NR               | 865       | 2                           | NR               | 995       | 0                           | NR               |
| 480       | 18                          | NR               | 610       | 998                         | NR               | 740       | 61                          | NR               | 870       | 2                           | NR               | 1000      | 0                           | NR               |
| 485       | 20                          | NR               | 615       | 990                         | NR               | 745       | 53                          | NR               | 875       | 2                           | NR               |           |                             |                  |

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### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 0.8

| 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    | 27                       | NR            | 620    | 966                      | NR            | 750    | 46                       | NR            | 880    | 1                        | NR            |
| 365    | 0                        | NR            | 495    | 42                       | NR            | 625    | 930                      | NR            | 755    | 39                       | NR            | 885    | 1                        | NR            |
| 370    | 0                        | NR            | 500    | 67                       | NR            | 630    | 888                      | NR            | 760    | 34                       | NR            | 890    | 1                        | NR            |
| 375    | 0                        | NR            | 505    | 101                      | NR            | 635    | 835                      | NR            | 765    | 30                       | NR            | 895    | 1                        | NR            |
| 380    | 0                        | NR            | 510    | 139                      | NR            | 640    | 778                      | NR            | 770    | 26                       | NR            | 900    | 1                        | NR            |
| 385    | 0                        | NR            | 515    | 183                      | NR            | 645    | 717                      | NR            | 775    | 22                       | NR            | 905    | 1                        | NR            |
| 390    | 0                        | NR            | 520    | 224                      | NR            | 650    | 656                      | NR            | 780    | 19                       | NR            | 910    | 1                        | NR            |
| 395    | 0                        | NR            | 525    | 262                      | NR            | 655    | 595                      | NR            | 785    | 17                       | NR            | 915    | 1                        | NR            |
| 400    | 1                        | NR            | 530    | 299                      | NR            | 660    | 536                      | NR            | 790    | 15                       | NR            | 920    | 1                        | NR            |
| 405    | 3                        | NR            | 535    | 332                      | NR            | 665    | 480                      | NR            | 795    | 13                       | NR            | 925    | 1                        | NR            |
| 410    | 7                        | NR            | 540    | 365                      | NR            | 670    | 425                      | NR            | 800    | 11                       | NR            | 930    | 1                        | NR            |
| 415    | 17                       | NR            | 545    | 400                      | NR            | 675    | 376                      | NR            | 805    | 10                       | NR            | 935    | 0                        | NR            |
| 420    | 36                       | NR            | 550    | 437                      | NR            | 680    | 332                      | NR            | 810    | 8                        | NR            | 940    | 0                        | NR            |
| 425    | 67                       | NR            | 555    | 479                      | NR            | 685    | 291                      | NR            | 815    | 8                        | NR            | 945    | 0                        | NR            |
| 430    | 105                      | NR            | 560    | 525                      | NR            | 690    | 255                      | NR            | 820    | 7                        | NR            | 950    | 0                        | NR            |
| 435    | 141                      | NR            | 565    | 579                      | NR            | 695    | 221                      | NR            | 825    | 6                        | NR            | 955    | 0                        | NR            |
| 440    | 169                      | NR            | 570    | 639                      | NR            | 700    | 192                      | NR            | 830    | 5                        | NR            | 960    | 0                        | NR            |
| 445    | 173                      | NR            | 575    | 703                      | NR            | 705    | 167                      | NR            | 835    | 4                        | NR            | 965    | 0                        | NR            |
| 450    | 136                      | NR            | 580    | 769                      | NR            | 710    | 144                      | NR            | 840    | 4                        | NR            | 970    | 0                        | NR            |
| 455    | 80                       | NR            | 585    | 832                      | NR            | 715    | 125                      | NR            | 845    | 3                        | NR            | 975    | 0                        | NR            |
| 460    | 45                       | NR            | 590    | 890                      | NR            | 720    | 109                      | NR            | 850    | 3                        | NR            | 980    | 0                        | NR            |
| 465    | 32                       | NR            | 595    | 937                      | NR            | 725    | 94                       | NR            | 855    | 3                        | NR            | 985    | 0                        | NR            |
| 470    | 23                       | NR            | 600    | 972                      | NR            | 730    | 81                       | NR            | 860    | 2                        | NR            | 990    | 0                        | NR            |
| 475    | 18                       | NR            | 605    | 992                      | NR            | 735    | 70                       | NR            | 865    | 2                        | NR            | 995    | 0                        | NR            |
| 480    | 18                       | NR            | 610    | 998                      | NR            | 740    | 61                       | NR            | 870    | 2                        | NR            | 1000   | 0                        | NR            |
| 485    | 20                       | NR            | 615    | 990                      | NR            | 745    | 53                       | NR            | 875    | 2                        | NR            |        |                          |               |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 1.21

| 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    | 27                       | NR            | 620    | 966                      | NR            | 750    | 46                       | NR            | 880    | 1                        | NR            |
| 365    | 0                        | NR            | 495    | 42                       | NR            | 625    | 930                      | NR            | 755    | 39                       | NR            | 885    | 1                        | NR            |
| 370    | 0                        | NR            | 500    | 67                       | NR            | 630    | 888                      | NR            | 760    | 34                       | NR            | 890    | 1                        | NR            |
| 375    | 0                        | NR            | 505    | 101                      | NR            | 635    | 835                      | NR            | 765    | 30                       | NR            | 895    | 1                        | NR            |
| 380    | 0                        | NR            | 510    | 139                      | NR            | 640    | 778                      | NR            | 770    | 26                       | NR            | 900    | 1                        | NR            |
| 385    | 0                        | NR            | 515    | 183                      | NR            | 645    | 717                      | NR            | 775    | 22                       | NR            | 905    | 1                        | NR            |
| 390    | 0                        | NR            | 520    | 224                      | NR            | 650    | 656                      | NR            | 780    | 19                       | NR            | 910    | 1                        | NR            |
| 395    | 0                        | NR            | 525    | 262                      | NR            | 655    | 595                      | NR            | 785    | 17                       | NR            | 915    | 1                        | NR            |
| 400    | 1                        | NR            | 530    | 299                      | NR            | 660    | 536                      | NR            | 790    | 15                       | NR            | 920    | 1                        | NR            |
| 405    | 3                        | NR            | 535    | 332                      | NR            | 665    | 480                      | NR            | 795    | 13                       | NR            | 925    | 1                        | NR            |
| 410    | 7                        | NR            | 540    | 365                      | NR            | 670    | 425                      | NR            | 800    | 11                       | NR            | 930    | 1                        | NR            |
| 415    | 17                       | NR            | 545    | 400                      | NR            | 675    | 376                      | NR            | 805    | 10                       | NR            | 935    | 0                        | NR            |
| 420    | 36                       | NR            | 550    | 437                      | NR            | 680    | 332                      | NR            | 810    | 8                        | NR            | 940    | 0                        | NR            |
| 425    | 67                       | NR            | 555    | 479                      | NR            | 685    | 291                      | NR            | 815    | 8                        | NR            | 945    | 0                        | NR            |
| 430    | 105                      | NR            | 560    | 525                      | NR            | 690    | 255                      | NR            | 820    | 7                        | NR            | 950    | 0                        | NR            |
| 435    | 141                      | NR            | 565    | 579                      | NR            | 695    | 221                      | NR            | 825    | 6                        | NR            | 955    | 0                        | NR            |
| 440    | 169                      | NR            | 570    | 639                      | NR            | 700    | 192                      | NR            | 830    | 5                        | NR            | 960    | 0                        | NR            |
| 445    | 173                      | NR            | 575    | 703                      | NR            | 705    | 167                      | NR            | 835    | 4                        | NR            | 965    | 0                        | NR            |
| 450    | 136                      | NR            | 580    | 769                      | NR            | 710    | 144                      | NR            | 840    | 4                        | NR            | 970    | 0                        | NR            |
| 455    | 80                       | NR            | 585    | 832                      | NR            | 715    | 125                      | NR            | 845    | 3                        | NR            | 975    | 0                        | NR            |
| 460    | 45                       | NR            | 590    | 890                      | NR            | 720    | 109                      | NR            | 850    | 3                        | NR            | 980    | 0                        | NR            |
| 465    | 32                       | NR            | 595    | 937                      | NR            | 725    | 94                       | NR            | 855    | 3                        | NR            | 985    | 0                        | NR            |
| 470    | 23                       | NR            | 600    | 972                      | NR            | 730    | 81                       | NR            | 860    | 2                        | NR            | 990    | 0                        | NR            |
| 475    | 18                       | NR            | 605    | 992                      | NR            | 735    | 70                       | NR            | 865    | 2                        | NR            | 995    | 0                        | NR            |
| 480    | 18                       | NR            | 610    | 998                      | NR            | 740    | 61                       | NR            | 870    | 2                        | NR            | 1000   | 0                        | NR            |
| 485    | 20                       | NR            | 615    | 990                      | NR            | 745    | 53                       | NR            | 875    | 2                        | NR            |        |                          |               |

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TM-30-18

### Summary

$R_f = 70.6$   
 $R_g = 97.6$   
 $CIE\ R_a = 71.9$   
 $R_g = -17.8$



### Color Vector Graphics



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 87 | CES26 = 60 | CES51 = 74 | CES76 = 58 |
| CES02 = 65 | CES27 = 77 | CES52 = 77 | CES77 = 82 |
| CES03 = 32 | CES28 = 85 | CES53 = 65 | CES78 = 65 |
| CES04 = 72 | CES29 = 50 | CES54 = 77 | CES79 = 86 |
| CES05 = 52 | CES30 = 49 | CES55 = 74 | CES80 = 85 |
| CES06 = 53 | CES31 = 55 | CES56 = 64 | CES81 = 61 |
| CES07 = 44 | CES32 = 55 | CES57 = 60 | CES82 = 93 |
| CES08 = 43 | CES33 = 55 | CES58 = 64 | CES83 = 83 |
| CES09 = 29 | CES34 = 75 | CES59 = 84 | CES84 = 93 |
| CES10 = 79 | CES35 = 88 | CES60 = 89 | CES85 = 81 |
| CES11 = 62 | CES36 = 78 | CES61 = 84 | CES86 = 55 |
| CES12 = 68 | CES37 = 82 | CES62 = 68 | CES87 = 79 |
| CES13 = 45 | CES38 = 54 | CES63 = 68 | CES88 = 72 |
| CES14 = 75 | CES39 = 90 | CES64 = 69 | CES89 = 62 |
| CES15 = 72 | CES40 = 86 | CES65 = 66 | CES90 = 67 |
| CES16 = 49 | CES41 = 75 | CES66 = 64 | CES91 = 89 |
| CES17 = 51 | CES42 = 83 | CES67 = 63 | CES92 = 67 |
| CES18 = 57 | CES43 = 68 | CES68 = 71 | CES93 = 78 |
| CES19 = 74 | CES44 = 98 | CES69 = 81 | CES94 = 52 |
| CES20 = 68 | CES45 = 76 | CES70 = 65 | CES95 = 76 |
| CES21 = 89 | CES46 = 68 | CES71 = 64 | CES96 = 78 |
| CES22 = 81 | CES47 = 60 | CES72 = 88 | CES97 = 76 |
| CES23 = 92 | CES48 = 47 | CES73 = 59 | CES98 = 71 |
| CES24 = 92 | CES49 = 65 | CES74 = 85 | CES99 = 65 |
| CES25 = 74 | CES50 = 74 | CES75 = 66 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)