

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: P1048203

Luminaire Tested: **GALN-SA1C-950-U-T2BC**

Issue Date: 07/10/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1048203  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 07/10/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: MCGRAW-EDISON  
Catalog Number: GALN-SA1C-950-U-T2BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 1050mA 1xLight Square PACKAGE  
90CRI 5000K FIXTURE w/ TYPE II ANGLED BACKLIGHT CONTROL  
Light Source: (14) 5000K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4489.4 lumens  
Efficiency: N/A  
Efficacy: 89.4 lumens/watt  
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')  
IES Classification: Type II - Short  
BUG Rating: B0 - U0 - G1

Input Watts (W): 50.2  
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

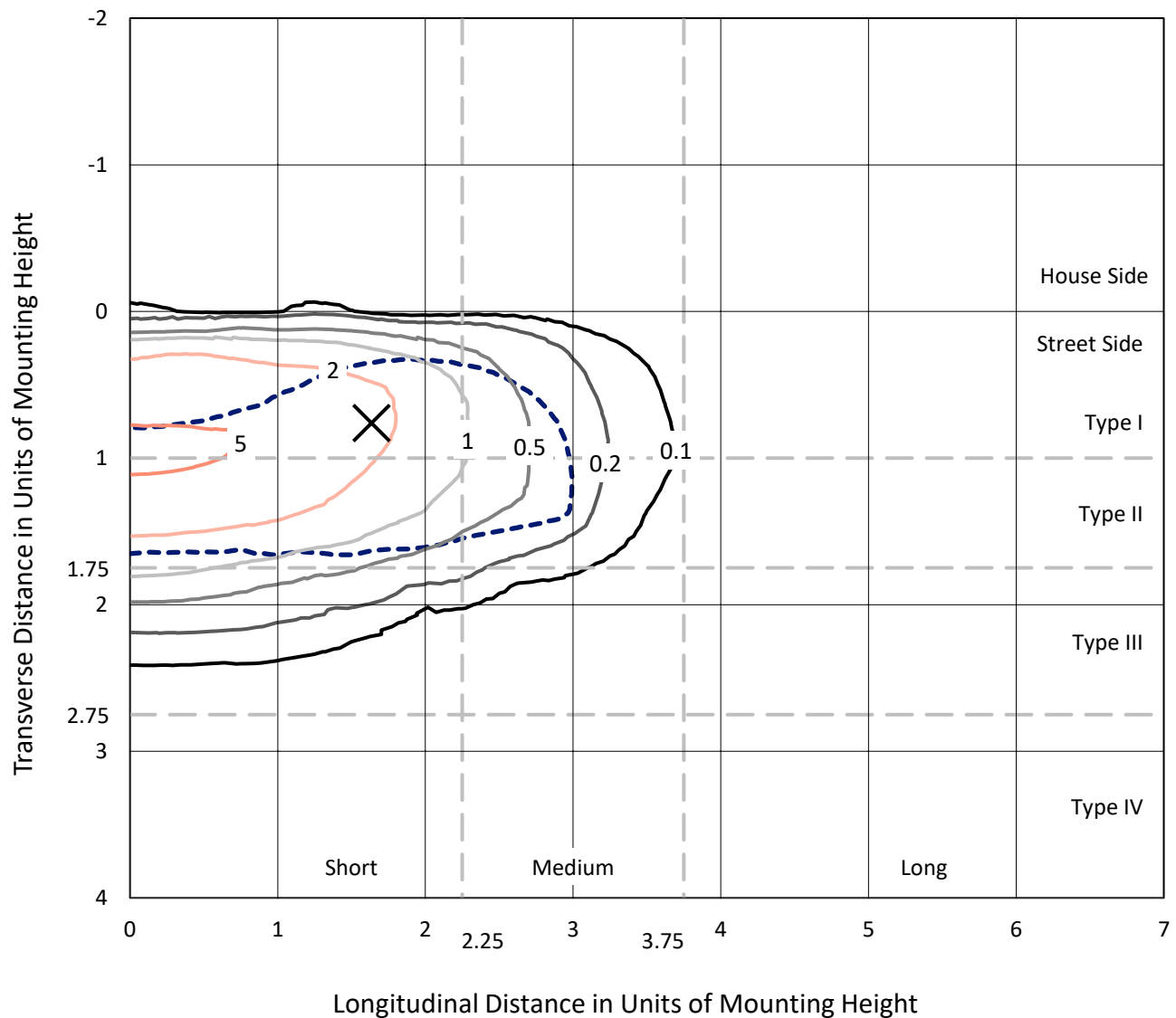


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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
 - - - 1/2 Max cd

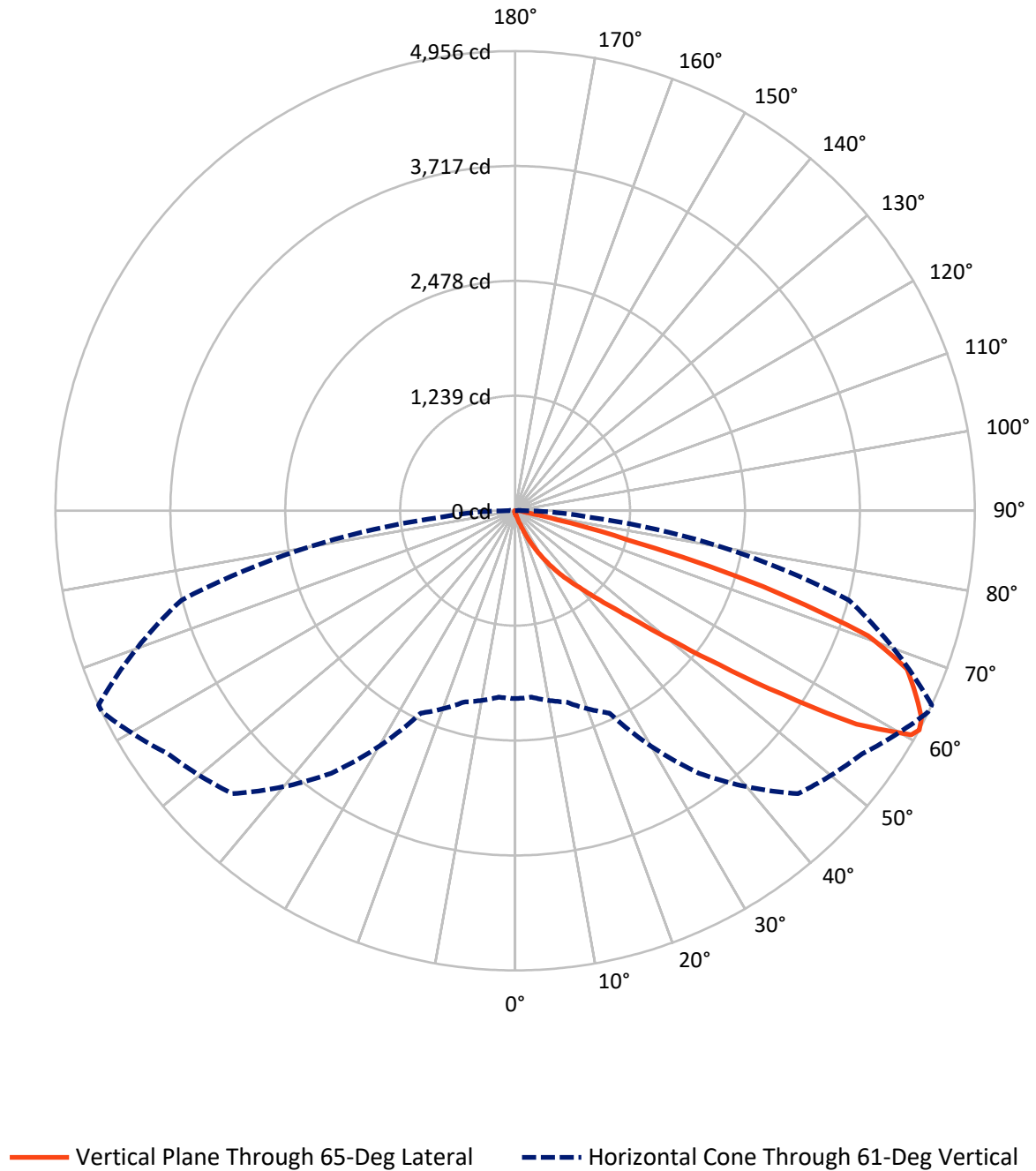


Based on 15 foot mounting height. Maximum calculated value = 5.9 fc  
 Type II - Short - N/A

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## Luminous Intensity Polar Plot



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CATALOG NUMBER: GALN-SA1C-950-U-T2BC

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 19.2     | 0.0    | 19.2   |
|                    | % Fixture | 0.4      | 0.0    | 0.4    |
| <b>Street Side</b> | Lumens    | 4470.3   | 0.0    | 4470.3 |
|                    | % Fixture | 99.6     | 0.0    | 99.6   |
| <b>Total</b>       | Lumens    | 4489.4   | 0.0    | 4489.4 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 3.5    | 0.1       |
| 10°-20°   | 36.9   | 0.8       |
| 20°-30°   | 132.5  | 3.0       |
| 30°-40°   | 352.7  | 7.9       |
| 40°-50°   | 926.6  | 20.6      |
| 50°-60°   | 1435.5 | 32.0      |
| 60°-70°   | 1203.7 | 26.8      |
| 70°-80°   | 354.2  | 7.9       |
| 80°-90°   | 43.7   | 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°    | 4489.4 | 100.0     |
| 0°-180°   | 4489.4 | 100.0     |





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 64°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 27.5   | 27.5   | 27.5   | 27.5   | 27.5   | 27.5   | 27.5   | 27.5   | 27.5   | 27.5   | 27.5   |
| 2.5°  | 33.4   | 33.7   | 33.0   | 31.8   | 30.9   | 30.9   | 30.6   | 29.6   | 29.6   | 28.7   | 28.1   |
| 5°    | 46.6   | 46.0   | 44.8   | 42.3   | 40.1   | 38.0   | 35.8   | 33.7   | 33.4   | 30.6   | 28.7   |
| 7.5°  | 76.3   | 76.9   | 72.9   | 65.2   | 58.7   | 50.3   | 42.6   | 38.0   | 37.4   | 32.7   | 29.0   |
| 10°   | 167.4  | 162.8  | 153.5  | 123.5  | 101.6  | 76.6   | 56.8   | 44.2   | 43.5   | 35.2   | 29.6   |
| 12.5° | 305.1  | 301.4  | 284.4  | 253.5  | 197.0  | 137.1  | 83.1   | 54.7   | 52.8   | 37.4   | 30.0   |
| 15°   | 439.8  | 433.9  | 424.6  | 393.4  | 327.4  | 245.8  | 135.9  | 74.7   | 69.8   | 40.5   | 29.6   |
| 17.5° | 525.6  | 526.5  | 518.2  | 504.9  | 462.3  | 363.8  | 234.7  | 111.5  | 101.9  | 46.0   | 29.0   |
| 20°   | 600.7  | 598.5  | 603.1  | 596.0  | 566.1  | 494.4  | 341.6  | 176.6  | 160.3  | 55.0   | 29.3   |
| 22.5° | 687.1  | 692.4  | 695.8  | 694.2  | 661.2  | 600.0  | 462.9  | 264.4  | 243.7  | 71.3   | 30.3   |
| 25°   | 802.9  | 802.3  | 802.6  | 798.6  | 766.5  | 698.6  | 584.6  | 373.4  | 352.4  | 97.9   | 32.4   |
| 27.5° | 924.3  | 928.0  | 929.6  | 915.0  | 873.0  | 806.3  | 697.3  | 492.6  | 467.9  | 140.5  | 35.2   |
| 30°   | 1090.2 | 1087.1 | 1080.0 | 1050.3 | 999.4  | 916.6  | 808.5  | 617.6  | 591.7  | 200.1  | 39.5   |
| 32.5° | 1313.7 | 1310.3 | 1274.5 | 1209.0 | 1132.8 | 1031.5 | 920.3  | 743.0  | 711.5  | 274.5  | 45.4   |
| 35°   | 1682.2 | 1687.4 | 1599.4 | 1429.9 | 1293.0 | 1169.5 | 1044.1 | 867.8  | 840.0  | 366.3  | 53.4   |
| 37.5° | 2246.4 | 2217.7 | 2098.2 | 1798.6 | 1504.0 | 1341.8 | 1162.4 | 993.8  | 969.7  | 479.3  | 63.9   |
| 40°   | 2794.6 | 2766.1 | 2731.6 | 2447.7 | 1870.5 | 1531.8 | 1327.9 | 1141.7 | 1110.5 | 606.8  | 79.4   |
| 42.5° | 3370.8 | 3355.1 | 3353.5 | 3139.5 | 2539.5 | 1830.4 | 1527.1 | 1315.0 | 1288.4 | 746.7  | 104.7  |
| 45°   | 3779.1 | 3763.3 | 3796.4 | 3833.7 | 3450.5 | 2470.3 | 1873.9 | 1540.1 | 1501.5 | 916.6  | 145.1  |
| 47.5° | 3834.1 | 3834.7 | 3923.0 | 4040.0 | 4127.4 | 3460.1 | 2335.9 | 1838.4 | 1791.5 | 1159.6 | 213.1  |
| 50°   | 3651.2 | 3658.3 | 3798.8 | 4008.2 | 4243.6 | 4290.5 | 3150.6 | 2271.4 | 2201.9 | 1447.8 | 309.4  |
| 52.5° | 3303.2 | 3311.2 | 3507.0 | 3851.3 | 4136.7 | 4490.0 | 4109.8 | 2837.8 | 2757.8 | 1807.2 | 445.3  |
| 55°   | 2989.7 | 2994.7 | 3219.2 | 3654.3 | 4007.9 | 4381.6 | 4679.3 | 3594.1 | 3489.1 | 2249.5 | 579.4  |
| 57.5° | 2679.4 | 2667.9 | 2814.0 | 3312.1 | 3986.0 | 4248.5 | 4763.3 | 4456.0 | 4340.2 | 2732.8 | 683.7  |
| 60°   | 2264.3 | 2245.2 | 2362.5 | 2679.4 | 3697.6 | 4335.9 | 4606.1 | 4932.9 | 4906.6 | 3405.7 | 764.3  |
| 61°   | 2025.6 | 2017.6 | 2135.5 | 2407.3 | 3454.8 | 4313.7 | 4568.4 | 4952.9 | 4955.7 | 3724.1 | 800.5  |
| 62.5° | 1446.5 | 1469.4 | 1649.7 | 2003.0 | 2893.7 | 4169.4 | 4573.4 | 4890.9 | 4918.3 | 4147.2 | 894.0  |
| 65°   | 643.0  | 679.7  | 819.9  | 1107.4 | 1682.8 | 3468.4 | 4529.5 | 4754.7 | 4741.1 | 4263.3 | 1216.5 |
| 67.5° | 381.4  | 387.0  | 456.8  | 627.5  | 891.3  | 1865.6 | 3997.1 | 4574.6 | 4556.4 | 3711.5 | 1513.5 |
| 70°   | 300.5  | 303.3  | 325.5  | 393.8  | 517.3  | 714.6  | 2281.3 | 3957.9 | 4037.3 | 3009.5 | 1481.7 |
| 72.5° | 285.0  | 284.4  | 287.5  | 299.6  | 325.8  | 354.5  | 883.2  | 2630.9 | 2792.4 | 2167.3 | 1242.4 |
| 75°   | 281.3  | 280.1  | 277.0  | 272.4  | 235.9  | 208.8  | 273.6  | 1163.7 | 1257.2 | 1480.8 | 935.4  |
| 77.5° | 273.0  | 273.3  | 273.9  | 261.3  | 202.3  | 147.6  | 132.5  | 373.4  | 459.2  | 939.8  | 664.9  |
| 80°   | 184.7  | 187.5  | 192.1  | 187.1  | 181.9  | 106.9  | 93.6   | 132.8  | 134.6  | 527.5  | 439.1  |
| 82.5° | 93.6   | 93.6   | 91.4   | 81.5   | 70.4   | 69.5   | 74.4   | 96.4   | 97.6   | 266.8  | 206.6  |
| 85°   | 56.5   | 59.6   | 60.8   | 55.3   | 50.6   | 46.6   | 56.8   | 76.6   | 79.4   | 103.5  | 48.2   |
| 87.5° | 12.7   | 13.0   | 14.2   | 18.8   | 27.5   | 37.4   | 52.8   | 70.1   | 71.3   | 66.4   | 5.9    |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

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CATALOG NUMBER: GALN-SA1C-950-U-T2BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°   | 95°  | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|-------|------|------|------|------|------|------|------|------|------|------|
| 0°    | 27.5  | 27.5 | 27.5 | 27.5 | 27.5 | 27.5 | 27.5 | 27.5 | 27.5 | 27.5 | 27.5 |
| 2.5°  | 27.8  | 27.2 | 26.9 | 25.9 | 25.0 | 24.1 | 23.5 | 23.2 | 23.5 | 23.8 | 23.8 |
| 5°    | 27.5  | 26.6 | 25.0 | 23.5 | 22.2 | 21.0 | 19.8 | 19.5 | 19.5 | 19.8 | 19.8 |
| 7.5°  | 27.5  | 25.9 | 23.8 | 21.9 | 20.1 | 18.2 | 17.3 | 16.7 | 17.0 | 17.0 | 17.0 |
| 10°   | 27.5  | 25.6 | 22.9 | 20.1 | 17.9 | 15.8 | 14.2 | 13.6 | 13.6 | 13.6 | 13.6 |
| 12.5° | 27.2  | 25.3 | 21.9 | 18.5 | 15.4 | 13.0 | 11.1 | 10.2 | 10.5 | 10.5 | 10.5 |
| 15°   | 26.6  | 24.4 | 20.7 | 15.8 | 12.4 | 9.9  | 8.0  | 7.1  | 7.4  | 8.0  | 8.3  |
| 17.5° | 25.6  | 23.5 | 18.5 | 13.3 | 9.9  | 7.4  | 5.6  | 4.9  | 5.3  | 6.2  | 6.2  |
| 20°   | 25.3  | 22.5 | 16.4 | 10.8 | 7.4  | 5.3  | 3.7  | 3.1  | 3.4  | 4.6  | 4.9  |
| 22.5° | 25.3  | 21.9 | 14.8 | 9.0  | 5.6  | 3.4  | 2.2  | 1.2  | 1.2  | 2.2  | 2.2  |
| 25°   | 25.6  | 21.6 | 13.6 | 7.4  | 4.0  | 2.5  | 1.2  | 0.6  | 1.2  | 3.4  | 4.0  |
| 27.5° | 26.3  | 21.3 | 13.0 | 6.2  | 3.1  | 2.2  | 0.9  | 2.2  | 3.7  | 3.7  | 3.7  |
| 30°   | 26.9  | 20.7 | 12.0 | 5.3  | 2.8  | 1.5  | 1.5  | 3.1  | 3.1  | 3.7  | 4.0  |
| 32.5° | 27.8  | 20.4 | 11.4 | 4.6  | 2.2  | 1.2  | 2.2  | 1.9  | 1.9  | 2.2  | 2.5  |
| 35°   | 29.6  | 20.7 | 10.8 | 4.6  | 2.2  | 1.5  | 1.9  | 0.9  | 0.6  | 0.6  | 0.6  |
| 37.5° | 32.1  | 21.0 | 9.9  | 4.0  | 1.9  | 1.9  | 0.9  | 0.0  | 0.0  | 0.0  | 0.0  |
| 40°   | 36.1  | 21.9 | 9.3  | 3.7  | 1.5  | 1.5  | 0.3  | 0.0  | 0.0  | 0.0  | 0.0  |
| 42.5° | 42.9  | 23.8 | 9.0  | 3.4  | 1.5  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 45°   | 56.5  | 28.1 | 8.3  | 3.1  | 1.5  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 47.5° | 81.2  | 38.3 | 8.0  | 2.5  | 0.9  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 50°   | 118.6 | 51.9 | 7.7  | 2.2  | 0.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 52.5° | 151.3 | 54.7 | 5.3  | 1.9  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 55°   | 155.0 | 37.7 | 4.0  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 57.5° | 123.5 | 24.4 | 3.4  | 0.9  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 60°   | 93.6  | 18.5 | 3.1  | 0.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 61°   | 89.9  | 16.7 | 3.1  | 0.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 62.5° | 99.1  | 14.5 | 2.8  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 65°   | 161.2 | 12.0 | 2.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 67.5° | 280.1 | 10.5 | 2.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 70°   | 353.9 | 9.9  | 1.9  | 0.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 72.5° | 308.5 | 9.0  | 1.9  | 0.6  | 0.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 75°   | 185.6 | 7.7  | 1.9  | 1.2  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 77.5° | 97.3  | 5.9  | 1.9  | 1.5  | 0.9  | 0.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 80°   | 47.3  | 5.3  | 2.2  | 1.5  | 1.2  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 82.5° | 18.5  | 4.3  | 2.5  | 2.2  | 1.5  | 0.9  | 0.3  | 0.0  | 0.0  | 0.0  | 0.0  |
| 85°   | 8.3   | 3.7  | 2.8  | 2.5  | 2.2  | 1.2  | 0.3  | 0.0  | 0.0  | 0.0  | 0.0  |
| 87.5° | 4.3   | 3.4  | 3.1  | 2.8  | 2.2  | 1.5  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  |
| 90°   | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |

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

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-17

Test Date: 10/11/2024

Luminaire Tested: GSS-SB1A-950-U-5WQ

Data in this report applies to families of products including GSS-SB1A-950-U-5WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-17  
 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-950-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 90 CRI  
 5000K CCT 26 LEDS

### Spectral Parameters

CCT (K): 4765  
 CIE  $u'$ : 0.2105  
 CIE  $v'$ : 0.4941  
 Duv: 0.0052  
 CIE x: 0.3536  
 CIE y: 0.3689  
 CIE z: 0.2775  
 Peak Wavelength (nm): 449  
 Dominant Wavelength (nm): 571  
 Purity: 16.80041  
 R<sub>f</sub>: 90.7  
 R<sub>g</sub>: 98

CRI (Ra): 90.8  
 R1: 89.8  
 R2: 93.1  
 R3: 95.3  
 R4: 90.3  
 R5: 89.0  
 R6: 89.7  
 R7: 94.9  
 R8: 84.0  
 R9: 54.9  
 R10: 83.0  
 R11: 89.6  
 R12: 68.0  
 R13: 90.6  
 R14: 97.3  
 R15: 86.2



### Test Conditions

Stabilization Time: 20M  
 Operation Time: 1H 20M  
 Sphere Temperature (°C): 25.2

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

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**CIE 1931 Chromaticity Diagram**



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



Point lies inside the ANSI 5000K 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       | 462                         | NR               | 620       | 668                         | NR               | 750       | 45                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 498                         | NR               | 625       | 652                         | NR               | 755       | 39                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 533                         | NR               | 630       | 634                         | NR               | 760       | 33                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 562                         | NR               | 635       | 610                         | NR               | 765       | 28                          | NR               | 895       | 1                           | NR               |
| 380       | 0                           | NR               | 510       | 590                         | NR               | 640       | 583                         | NR               | 770       | 24                          | NR               | 900       | 1                           | NR               |
| 385       | 0                           | NR               | 515       | 617                         | NR               | 645       | 552                         | NR               | 775       | 21                          | NR               | 905       | 1                           | NR               |
| 390       | 0                           | NR               | 520       | 642                         | NR               | 650       | 519                         | NR               | 780       | 18                          | NR               | 910       | 0                           | NR               |
| 395       | 2                           | NR               | 525       | 661                         | NR               | 655       | 484                         | NR               | 785       | 15                          | NR               | 915       | 0                           | NR               |
| 400       | 4                           | NR               | 530       | 681                         | NR               | 660       | 448                         | NR               | 790       | 13                          | NR               | 920       | 0                           | NR               |
| 405       | 7                           | NR               | 535       | 695                         | NR               | 665       | 411                         | NR               | 795       | 11                          | NR               | 925       | 0                           | NR               |
| 410       | 12                          | NR               | 540       | 702                         | NR               | 670       | 373                         | NR               | 800       | 10                          | NR               | 930       | 0                           | NR               |
| 415       | 21                          | NR               | 545       | 708                         | NR               | 675       | 338                         | NR               | 805       | 8                           | NR               | 935       | 0                           | NR               |
| 420       | 39                          | NR               | 550       | 707                         | NR               | 680       | 305                         | NR               | 810       | 7                           | NR               | 940       | 0                           | NR               |
| 425       | 74                          | NR               | 555       | 706                         | NR               | 685       | 272                         | NR               | 815       | 6                           | NR               | 945       | 0                           | NR               |
| 430       | 139                         | NR               | 560       | 700                         | NR               | 690       | 243                         | NR               | 820       | 5                           | NR               | 950       | 0                           | NR               |
| 435       | 270                         | NR               | 565       | 696                         | NR               | 695       | 214                         | NR               | 825       | 5                           | NR               | 955       | 0                           | NR               |
| 440       | 517                         | NR               | 570       | 692                         | NR               | 700       | 188                         | NR               | 830       | 4                           | NR               | 960       | 0                           | NR               |
| 445       | 877                         | NR               | 575       | 689                         | NR               | 705       | 165                         | NR               | 835       | 3                           | NR               | 965       | 0                           | NR               |
| 450       | 978                         | NR               | 580       | 688                         | NR               | 710       | 144                         | NR               | 840       | 3                           | NR               | 970       | 0                           | NR               |
| 455       | 738                         | NR               | 585       | 688                         | NR               | 715       | 125                         | NR               | 845       | 3                           | NR               | 975       | 0                           | NR               |
| 460       | 618                         | NR               | 590       | 689                         | NR               | 720       | 110                         | NR               | 850       | 2                           | NR               | 980       | 0                           | NR               |
| 465       | 529                         | NR               | 595       | 690                         | NR               | 725       | 95                          | NR               | 855       | 2                           | NR               | 985       | 0                           | NR               |
| 470       | 420                         | NR               | 600       | 690                         | NR               | 730       | 82                          | NR               | 860       | 2                           | NR               | 990       | 0                           | NR               |
| 475       | 395                         | NR               | 605       | 688                         | NR               | 735       | 71                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 408                         | NR               | 610       | 685                         | NR               | 740       | 61                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 429                         | NR               | 615       | 678                         | NR               | 745       | 52                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.99

| 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       | 462                         | NR               | 620       | 668                         | NR               | 750       | 45                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 498                         | NR               | 625       | 652                         | NR               | 755       | 39                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 533                         | NR               | 630       | 634                         | NR               | 760       | 33                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 562                         | NR               | 635       | 610                         | NR               | 765       | 28                          | NR               | 895       | 1                           | NR               |
| 380       | 0                           | NR               | 510       | 590                         | NR               | 640       | 583                         | NR               | 770       | 24                          | NR               | 900       | 1                           | NR               |
| 385       | 0                           | NR               | 515       | 617                         | NR               | 645       | 552                         | NR               | 775       | 21                          | NR               | 905       | 1                           | NR               |
| 390       | 0                           | NR               | 520       | 642                         | NR               | 650       | 519                         | NR               | 780       | 18                          | NR               | 910       | 0                           | NR               |
| 395       | 2                           | NR               | 525       | 661                         | NR               | 655       | 484                         | NR               | 785       | 15                          | NR               | 915       | 0                           | NR               |
| 400       | 4                           | NR               | 530       | 681                         | NR               | 660       | 448                         | NR               | 790       | 13                          | NR               | 920       | 0                           | NR               |
| 405       | 7                           | NR               | 535       | 695                         | NR               | 665       | 411                         | NR               | 795       | 11                          | NR               | 925       | 0                           | NR               |
| 410       | 12                          | NR               | 540       | 702                         | NR               | 670       | 373                         | NR               | 800       | 10                          | NR               | 930       | 0                           | NR               |
| 415       | 21                          | NR               | 545       | 708                         | NR               | 675       | 338                         | NR               | 805       | 8                           | NR               | 935       | 0                           | NR               |
| 420       | 39                          | NR               | 550       | 707                         | NR               | 680       | 305                         | NR               | 810       | 7                           | NR               | 940       | 0                           | NR               |
| 425       | 74                          | NR               | 555       | 706                         | NR               | 685       | 272                         | NR               | 815       | 6                           | NR               | 945       | 0                           | NR               |
| 430       | 139                         | NR               | 560       | 700                         | NR               | 690       | 243                         | NR               | 820       | 5                           | NR               | 950       | 0                           | NR               |
| 435       | 270                         | NR               | 565       | 696                         | NR               | 695       | 214                         | NR               | 825       | 5                           | NR               | 955       | 0                           | NR               |
| 440       | 517                         | NR               | 570       | 692                         | NR               | 700       | 188                         | NR               | 830       | 4                           | NR               | 960       | 0                           | NR               |
| 445       | 877                         | NR               | 575       | 689                         | NR               | 705       | 165                         | NR               | 835       | 3                           | NR               | 965       | 0                           | NR               |
| 450       | 978                         | NR               | 580       | 688                         | NR               | 710       | 144                         | NR               | 840       | 3                           | NR               | 970       | 0                           | NR               |
| 455       | 738                         | NR               | 585       | 688                         | NR               | 715       | 125                         | NR               | 845       | 3                           | NR               | 975       | 0                           | NR               |
| 460       | 618                         | NR               | 590       | 689                         | NR               | 720       | 110                         | NR               | 850       | 2                           | NR               | 980       | 0                           | NR               |
| 465       | 529                         | NR               | 595       | 690                         | NR               | 725       | 95                          | NR               | 855       | 2                           | NR               | 985       | 0                           | NR               |
| 470       | 420                         | NR               | 600       | 690                         | NR               | 730       | 82                          | NR               | 860       | 2                           | NR               | 990       | 0                           | NR               |
| 475       | 395                         | NR               | 605       | 688                         | NR               | 735       | 71                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 408                         | NR               | 610       | 685                         | NR               | 740       | 61                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 429                         | NR               | 615       | 678                         | NR               | 745       | 52                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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### Melanopic Flux vs. Wavelength


**Melanopic Lumens: NR**
**M/P: 4.22**

| $\lambda$<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               | 462                                    | NR                             | 620               | 668                                    | NR                             | 750               | 45                                     | NR                             | 880               | 1                                      | NR                             |
| 365               | 0                                      | NR                             | 495               | 498                                    | NR                             | 625               | 652                                    | NR                             | 755               | 39                                     | NR                             | 885               | 1                                      | NR                             |
| 370               | 0                                      | NR                             | 500               | 533                                    | NR                             | 630               | 634                                    | NR                             | 760               | 33                                     | NR                             | 890               | 1                                      | NR                             |
| 375               | 0                                      | NR                             | 505               | 562                                    | NR                             | 635               | 610                                    | NR                             | 765               | 28                                     | NR                             | 895               | 1                                      | NR                             |
| 380               | 0                                      | NR                             | 510               | 590                                    | NR                             | 640               | 583                                    | NR                             | 770               | 24                                     | NR                             | 900               | 1                                      | NR                             |
| 385               | 0                                      | NR                             | 515               | 617                                    | NR                             | 645               | 552                                    | NR                             | 775               | 21                                     | NR                             | 905               | 1                                      | NR                             |
| 390               | 0                                      | NR                             | 520               | 642                                    | NR                             | 650               | 519                                    | NR                             | 780               | 18                                     | NR                             | 910               | 0                                      | NR                             |
| 395               | 2                                      | NR                             | 525               | 661                                    | NR                             | 655               | 484                                    | NR                             | 785               | 15                                     | NR                             | 915               | 0                                      | NR                             |
| 400               | 4                                      | NR                             | 530               | 681                                    | NR                             | 660               | 448                                    | NR                             | 790               | 13                                     | NR                             | 920               | 0                                      | NR                             |
| 405               | 7                                      | NR                             | 535               | 695                                    | NR                             | 665               | 411                                    | NR                             | 795               | 11                                     | NR                             | 925               | 0                                      | NR                             |
| 410               | 12                                     | NR                             | 540               | 702                                    | NR                             | 670               | 373                                    | NR                             | 800               | 10                                     | NR                             | 930               | 0                                      | NR                             |
| 415               | 21                                     | NR                             | 545               | 708                                    | NR                             | 675               | 338                                    | NR                             | 805               | 8                                      | NR                             | 935               | 0                                      | NR                             |
| 420               | 39                                     | NR                             | 550               | 707                                    | NR                             | 680               | 305                                    | NR                             | 810               | 7                                      | NR                             | 940               | 0                                      | NR                             |
| 425               | 74                                     | NR                             | 555               | 706                                    | NR                             | 685               | 272                                    | NR                             | 815               | 6                                      | NR                             | 945               | 0                                      | NR                             |
| 430               | 139                                    | NR                             | 560               | 700                                    | NR                             | 690               | 243                                    | NR                             | 820               | 5                                      | NR                             | 950               | 0                                      | NR                             |
| 435               | 270                                    | NR                             | 565               | 696                                    | NR                             | 695               | 214                                    | NR                             | 825               | 5                                      | NR                             | 955               | 0                                      | NR                             |
| 440               | 517                                    | NR                             | 570               | 692                                    | NR                             | 700               | 188                                    | NR                             | 830               | 4                                      | NR                             | 960               | 0                                      | NR                             |
| 445               | 877                                    | NR                             | 575               | 689                                    | NR                             | 705               | 165                                    | NR                             | 835               | 3                                      | NR                             | 965               | 0                                      | NR                             |
| 450               | 978                                    | NR                             | 580               | 688                                    | NR                             | 710               | 144                                    | NR                             | 840               | 3                                      | NR                             | 970               | 0                                      | NR                             |
| 455               | 738                                    | NR                             | 585               | 688                                    | NR                             | 715               | 125                                    | NR                             | 845               | 3                                      | NR                             | 975               | 0                                      | NR                             |
| 460               | 618                                    | NR                             | 590               | 689                                    | NR                             | 720               | 110                                    | NR                             | 850               | 2                                      | NR                             | 980               | 0                                      | NR                             |
| 465               | 529                                    | NR                             | 595               | 690                                    | NR                             | 725               | 95                                     | NR                             | 855               | 2                                      | NR                             | 985               | 0                                      | NR                             |
| 470               | 420                                    | NR                             | 600               | 690                                    | NR                             | 730               | 82                                     | NR                             | 860               | 2                                      | NR                             | 990               | 0                                      | NR                             |
| 475               | 395                                    | NR                             | 605               | 688                                    | NR                             | 735               | 71                                     | NR                             | 865               | 1                                      | NR                             | 995               | 0                                      | NR                             |
| 480               | 408                                    | NR                             | 610               | 685                                    | NR                             | 740               | 61                                     | NR                             | 870               | 1                                      | NR                             | 1000              | 0                                      | NR                             |
| 485               | 429                                    | NR                             | 615               | 678                                    | NR                             | 745               | 52                                     | NR                             | 875               | 1                                      | NR                             |                   |                                        |                                |

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TM-30-18

### Summary

$R_f = 90.7$   
 $R_g = 98$   
 CIE  $R_a = 90.8$   
 $R_9 = 54.9$



### Color Vector Graphics



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

|            |             |            |            |
|------------|-------------|------------|------------|
| CES01 = 85 | CES26 = 92  | CES51 = 96 | CES76 = 85 |
| CES02 = 60 | CES27 = 92  | CES52 = 97 | CES77 = 88 |
| CES03 = 31 | CES28 = 95  | CES53 = 94 | CES78 = 82 |
| CES04 = 69 | CES29 = 95  | CES54 = 93 | CES79 = 96 |
| CES05 = 48 | CES30 = 94  | CES55 = 92 | CES80 = 93 |
| CES06 = 50 | CES31 = 96  | CES56 = 92 | CES81 = 89 |
| CES07 = 41 | CES32 = 91  | CES57 = 91 | CES82 = 97 |
| CES08 = 40 | CES33 = 99  | CES58 = 91 | CES83 = 98 |
| CES09 = 29 | CES34 = 93  | CES59 = 95 | CES84 = 93 |
| CES10 = 73 | CES35 = 96  | CES60 = 92 | CES85 = 85 |
| CES11 = 56 | CES36 = 82  | CES61 = 92 | CES86 = 88 |
| CES12 = 62 | CES37 = 95  | CES62 = 87 | CES87 = 90 |
| CES13 = 42 | CES38 = 89  | CES63 = 91 | CES88 = 94 |
| CES14 = 74 | CES39 = 99  | CES64 = 88 | CES89 = 87 |
| CES15 = 71 | CES40 = 98  | CES65 = 86 | CES90 = 94 |
| CES16 = 46 | CES41 = 97  | CES66 = 85 | CES91 = 74 |
| CES17 = 48 | CES42 = 95  | CES67 = 84 | CES92 = 78 |
| CES18 = 56 | CES43 = 95  | CES68 = 86 | CES93 = 87 |
| CES19 = 70 | CES44 = 100 | CES69 = 88 | CES94 = 80 |
| CES20 = 65 | CES45 = 97  | CES70 = 84 | CES95 = 81 |
| CES21 = 85 | CES46 = 96  | CES71 = 79 | CES96 = 90 |
| CES22 = 77 | CES47 = 98  | CES72 = 93 | CES97 = 95 |
| CES23 = 91 | CES48 = 90  | CES73 = 78 | CES98 = 92 |
| CES24 = 90 | CES49 = 95  | CES74 = 93 | CES99 = 88 |
| CES25 = 70 | CES50 = 97  | CES75 = 80 |            |



**Color Rendition by Hue-Angle Bin**


**Measure Comparisons**



(END OF REPORT)