

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: P1378352

Luminaire Tested: **VAL-T-SB1B-722-U-T4FT**

Issue Date: 02/18/2026

This test was performed under the Supervised Manufacturer's Testing Program. The results of this test have not been  
influenced by sources from within Cooper Lighting Solutions or from external interests.

**Test Information**

Test Method: LM-79-08  
Report Number: P1378352  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 02/18/2026  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: VAL-T-SB1B-722-U-T4FT  
Description: GALLEON II WALL SLIM HIGH DENSITY LED ARRAYS 1SQUARE 40W 70CRI  
2200K FIXTURE w/ TYPE IV FORWARD THROW DISTRIBUTION OPTIC  
Light Source: (26) 2200K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER  
Luminaire Equipment: 

| <u>Sample No.</u> | <u>Condition</u> | <u>Description</u> |
|-------------------|------------------|--------------------|
| a                 | good             | reflector          |
| b                 | good             | lens               |
| c                 | good             | housing            |
| d                 | good             | cord               |

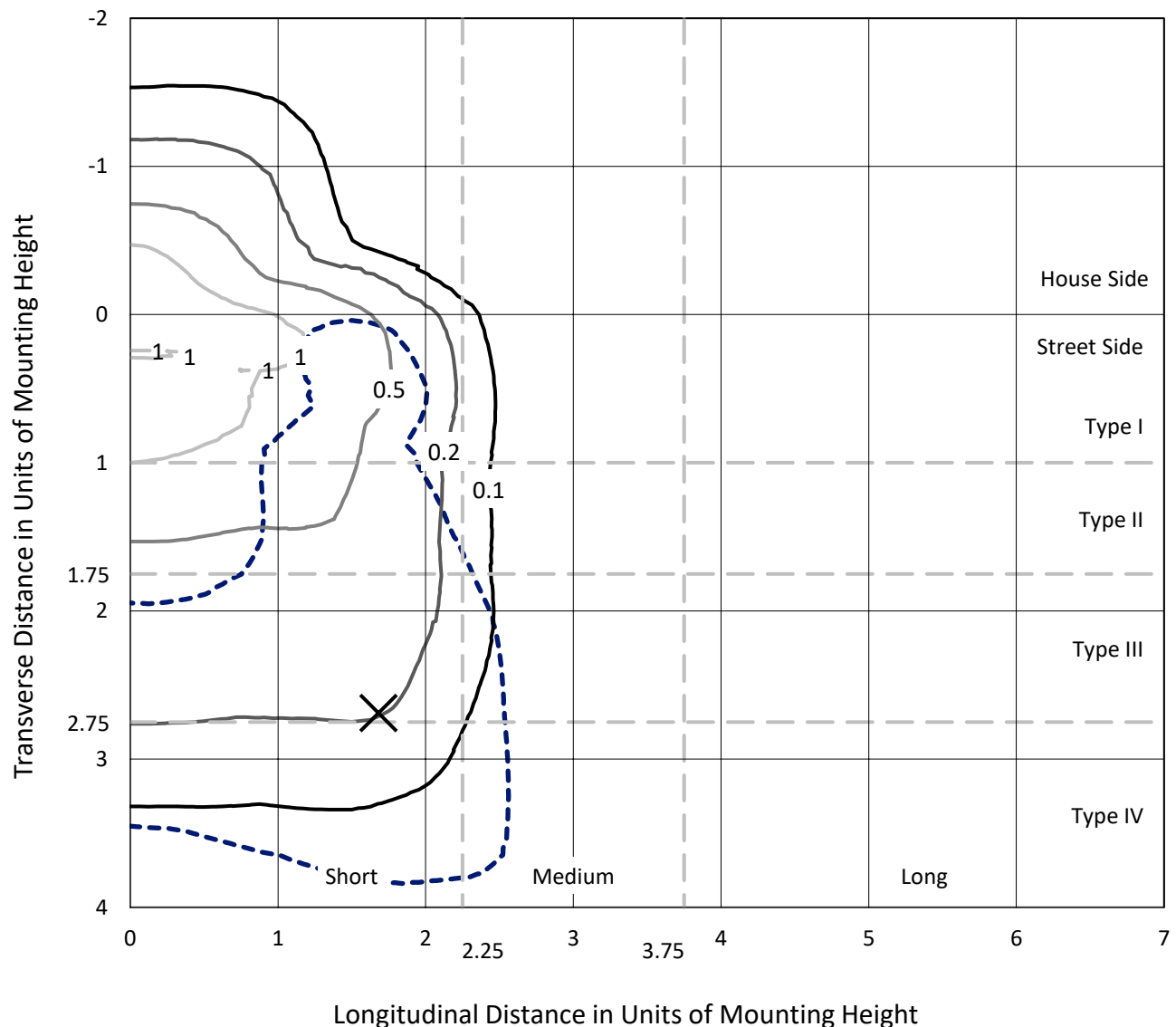
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4010.6 lumens  
Efficiency: N/A  
Efficacy: 100.3 lumens/watt  
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B1 - U0 - G1  
  
Input Watts (W): 40  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.98  
Total Harmonic Distortion (THDi): 5.3%  
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

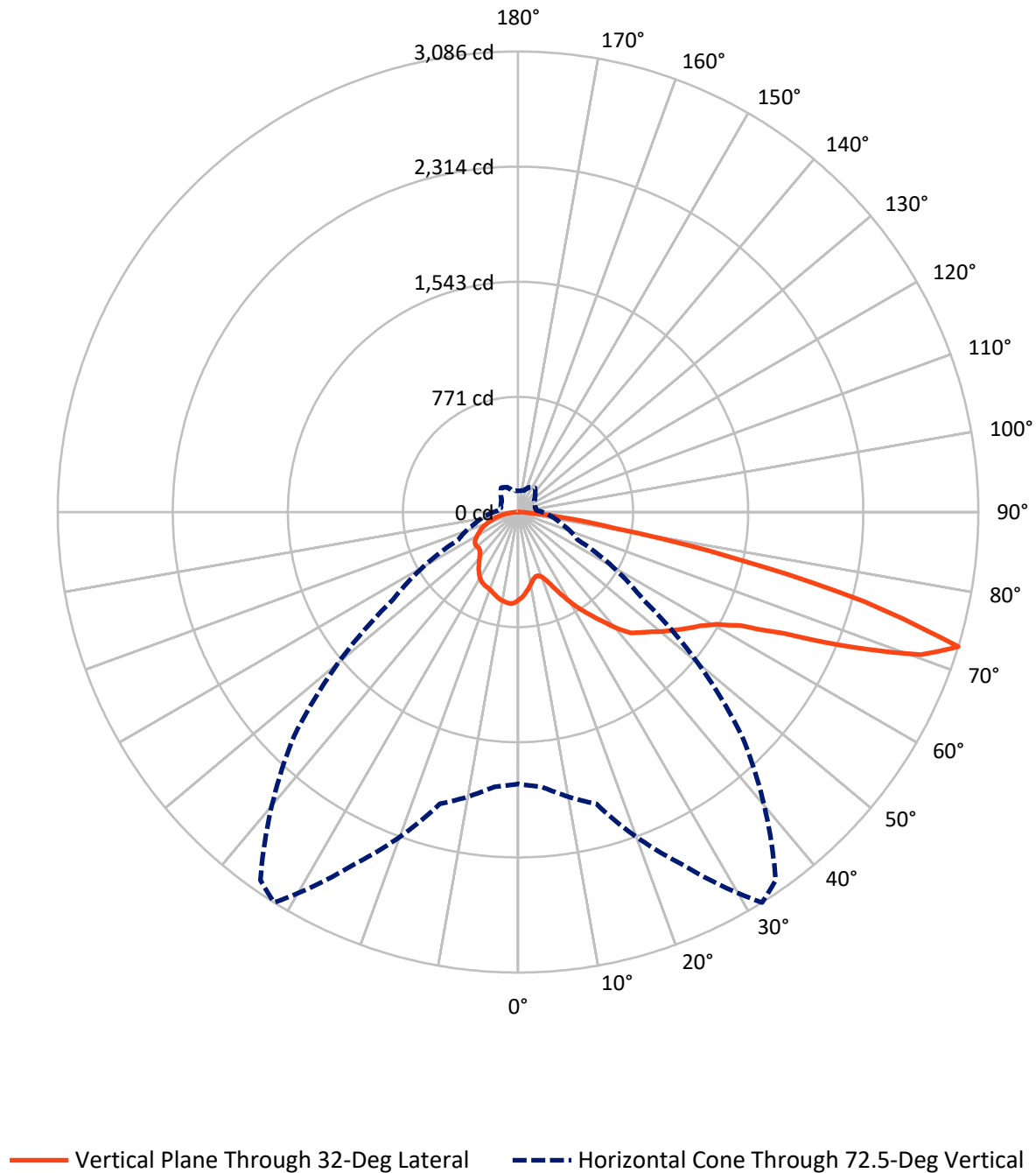
× Max cd  
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 1.5 fc  
 Type IV - Short - N/A

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## Luminous Intensity Polar Plot



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CATALOG NUMBER: VAL-T-SB1B-722-U-T4FT

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 967.2    | 0.0    | 967.2  |
|                    | % Fixture | 24.1     | 0.0    | 24.1   |
| <b>Street Side</b> | Lumens    | 3043.4   | 0.0    | 3043.4 |
|                    | % Fixture | 75.9     | 0.0    | 75.9   |
| <b>Total</b>       | Lumens    | 4010.6   | 0.0    | 4010.6 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 55.1   | 1.4       |
| 10°-20°   | 156.3  | 3.9       |
| 20°-30°   | 270.9  | 6.8       |
| 30°-40°   | 427.9  | 10.7      |
| 40°-50°   | 623.6  | 15.5      |
| 50°-60°   | 845.4  | 21.1      |
| 60°-70°   | 972.9  | 24.3      |
| 70°-80°   | 608.8  | 15.2      |
| 80°-90°   | 49.7   | 1.2       |
| 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°    | 4010.6 | 100.0     |
| 0°-180°   | 4010.6 | 100.0     |



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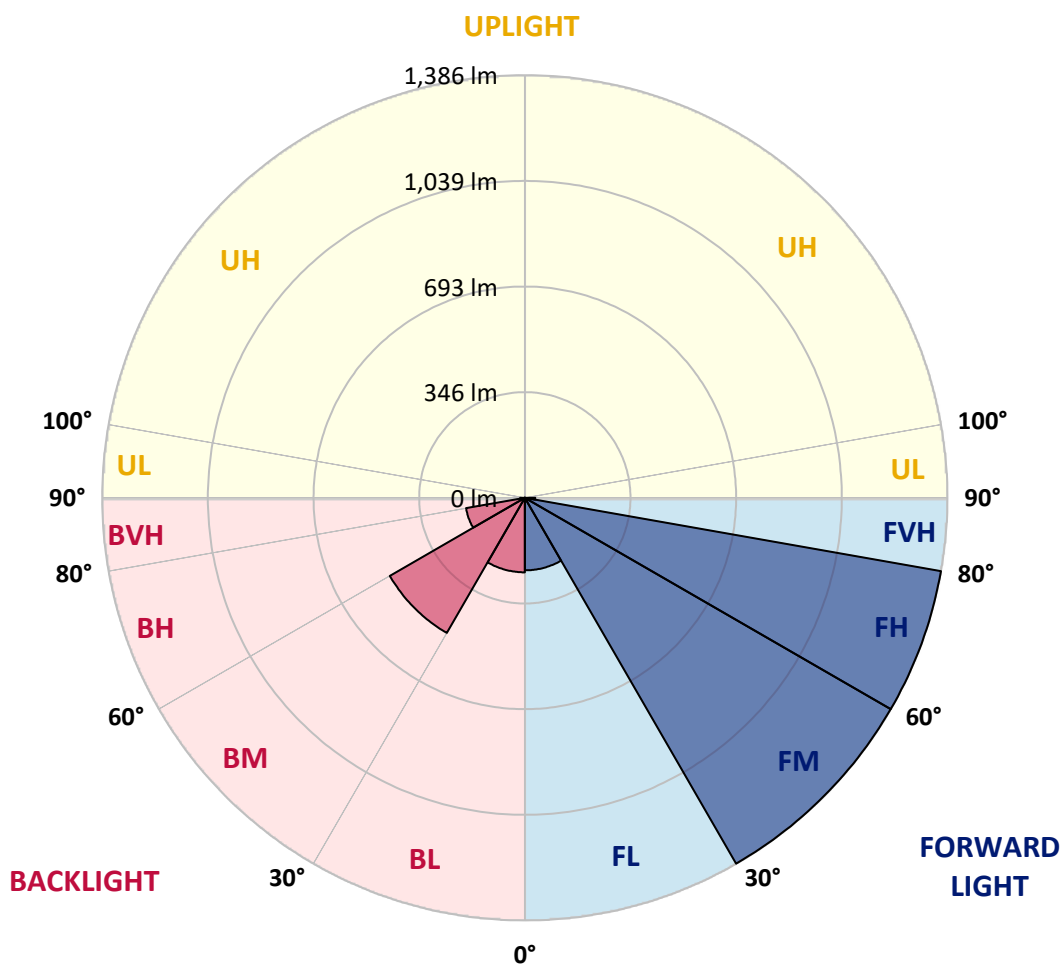
CATALOG NUMBER: VAL-T-SB1B-722-U-T4FT

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 237.9  | 5.9       |                         |      |         |
| FM   | (30°-60°)   | 1385.4 | 34.5      |                         |      |         |
| FH   | (60°-80°)   | 1385.9 | 34.6      |                         |      | G1/1800 |
| FVH  | (80°-90°)   | 34.1   | 0.9       |                         |      | G1/100  |
| BL   | (0°-30°)    | 244.4  | 6.1       | B1/500                  |      |         |
| BM   | (30°-60°)   | 511.5  | 12.8      | B1/1000                 |      |         |
| BH   | (60°-80°)   | 195.8  | 4.9       | B1/500                  |      | G1/500  |
| BVH  | (80°-90°)   | 15.5   | 0.4       |                         |      | G1/100  |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B1-U0-G1**

Type IV Short





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CATALOG NUMBER: VAL-T-SB1B-722-U-T4FT

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 32°    | 35°    | 45°    | 55°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 589.1  | 589.1  | 589.1  | 589.1  | 589.1  | 589.1  | 589.1  | 589.1  | 589.1  | 589.1  | 589.1  |
| 2.5°  | 564.2  | 563.3  | 567.9  | 566.1  | 569.7  | 567.9  | 567.9  | 573.4  | 578.0  | 584.5  | 589.1  |
| 5°    | 532.9  | 533.8  | 532.9  | 542.1  | 542.1  | 543.0  | 550.4  | 565.1  | 576.2  | 583.6  | 588.2  |
| 7.5°  | 492.3  | 494.1  | 497.8  | 508.0  | 514.4  | 519.0  | 532.9  | 548.5  | 567.0  | 580.8  | 597.4  |
| 10°   | 459.1  | 456.3  | 464.6  | 475.7  | 484.9  | 489.5  | 512.6  | 537.5  | 562.4  | 585.4  | 599.2  |
| 12.5° | 435.1  | 435.1  | 439.8  | 449.9  | 460.0  | 467.4  | 493.2  | 523.6  | 556.8  | 585.4  | 611.2  |
| 15°   | 430.5  | 432.4  | 434.2  | 437.9  | 447.1  | 450.8  | 475.7  | 513.5  | 550.4  | 593.7  | 619.5  |
| 17.5° | 446.2  | 444.4  | 442.5  | 444.4  | 448.0  | 449.9  | 468.3  | 505.2  | 546.7  | 594.6  | 624.1  |
| 20°   | 488.6  | 484.9  | 482.2  | 468.3  | 465.6  | 467.4  | 474.8  | 502.4  | 547.6  | 607.5  | 643.5  |
| 22.5° | 547.6  | 549.5  | 538.4  | 515.3  | 504.3  | 503.4  | 494.1  | 512.6  | 553.1  | 617.7  | 660.1  |
| 25°   | 632.4  | 624.1  | 613.1  | 585.4  | 562.4  | 554.1  | 534.7  | 533.8  | 565.1  | 636.1  | 684.1  |
| 27.5° | 718.2  | 713.6  | 696.0  | 657.3  | 631.5  | 619.5  | 584.5  | 567.0  | 582.6  | 658.2  | 711.7  |
| 30°   | 814.0  | 814.0  | 785.5  | 742.1  | 708.0  | 685.9  | 644.4  | 611.2  | 612.1  | 687.7  | 751.4  |
| 32.5° | 912.7  | 907.2  | 879.5  | 815.9  | 781.8  | 759.7  | 704.3  | 670.2  | 659.2  | 729.2  | 805.8  |
| 35°   | 983.7  | 985.5  | 959.7  | 903.5  | 854.6  | 833.4  | 783.6  | 744.9  | 720.0  | 787.3  | 874.9  |
| 37.5° | 1048.2 | 1050.1 | 1034.4 | 979.1  | 935.7  | 914.5  | 858.3  | 831.6  | 793.8  | 870.3  | 957.9  |
| 40°   | 1080.5 | 1075.9 | 1071.3 | 1051.0 | 1026.1 | 1009.5 | 951.4  | 916.4  | 883.2  | 959.7  | 1048.2 |
| 42.5° | 1104.4 | 1104.4 | 1097.1 | 1106.3 | 1106.3 | 1095.2 | 1050.1 | 1018.7 | 985.5  | 1084.2 | 1144.1 |
| 45°   | 1132.1 | 1120.1 | 1120.1 | 1128.4 | 1151.5 | 1158.8 | 1162.5 | 1133.0 | 1102.6 | 1207.7 | 1248.3 |
| 47.5° | 1160.7 | 1163.5 | 1156.1 | 1166.2 | 1198.5 | 1230.8 | 1278.7 | 1252.0 | 1218.8 | 1354.3 | 1366.3 |
| 50°   | 1196.6 | 1200.3 | 1200.3 | 1222.5 | 1258.4 | 1296.2 | 1414.2 | 1386.6 | 1331.2 | 1520.2 | 1496.3 |
| 52.5° | 1205.9 | 1207.7 | 1235.4 | 1260.3 | 1312.8 | 1364.4 | 1549.7 | 1510.1 | 1451.1 | 1671.4 | 1609.7 |
| 55°   | 1189.3 | 1203.1 | 1252.9 | 1300.8 | 1376.4 | 1438.2 | 1678.8 | 1629.0 | 1538.7 | 1786.7 | 1699.1 |
| 57.5° | 1227.1 | 1232.6 | 1278.7 | 1333.1 | 1438.2 | 1517.5 | 1806.0 | 1735.0 | 1599.5 | 1881.6 | 1735.0 |
| 60°   | 1307.3 | 1303.6 | 1344.1 | 1405.0 | 1526.7 | 1629.0 | 1943.4 | 1825.4 | 1650.2 | 1897.3 | 1664.0 |
| 62.5° | 1487.0 | 1468.6 | 1483.4 | 1538.7 | 1675.1 | 1814.3 | 2084.4 | 1899.1 | 1618.9 | 1742.4 | 1424.4 |
| 65°   | 1730.4 | 1724.9 | 1715.7 | 1773.8 | 1960.9 | 2079.8 | 2260.5 | 1883.5 | 1462.2 | 1470.4 | 1145.0 |
| 67.5° | 1948.0 | 1955.4 | 1949.8 | 2104.7 | 2419.1 | 2527.9 | 2447.7 | 1770.1 | 1211.4 | 1049.1 | 736.6  |
| 70°   | 2031.9 | 2046.6 | 2144.4 | 2439.4 | 2863.5 | 2989.8 | 2532.5 | 1481.5 | 838.9  | 567.0  | 362.3  |
| 72.5° | 1821.7 | 1848.4 | 2024.5 | 2606.2 | 3085.6 | 3011.0 | 2123.2 | 1022.4 | 442.5  | 298.7  | 201.9  |
| 75°   | 1259.3 | 1287.0 | 1554.3 | 2185.9 | 2400.7 | 2278.0 | 1303.6 | 440.7  | 228.6  | 174.2  | 124.5  |
| 77.5° | 494.1  | 566.1  | 741.2  | 1219.7 | 1471.4 | 1443.7 | 617.7  | 152.1  | 127.2  | 106.0  | 81.1   |
| 80°   | 165.9  | 188.1  | 275.7  | 481.2  | 652.7  | 689.6  | 224.9  | 77.4   | 73.8   | 64.5   | 50.7   |
| 82.5° | 59.9   | 67.3   | 118.0  | 181.6  | 297.8  | 299.6  | 72.8   | 41.5   | 45.2   | 38.7   | 26.7   |
| 85°   | 20.3   | 22.1   | 27.7   | 56.2   | 72.8   | 78.4   | 20.3   | 15.7   | 18.4   | 16.6   | 12.0   |
| 87.5° | 1.8    | 1.8    | 1.8    | 2.8    | 2.8    | 2.8    | 2.8    | 3.7    | 3.7    | 2.8    | 2.8    |
| 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: VAL-T-SB1B-722-U-T4FT

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 589.1  | 589.1  | 589.1 | 589.1 | 589.1 | 589.1 | 589.1 | 589.1 | 589.1 | 589.1 | 589.1 |
| 2.5°  | 590.0  | 592.8  | 594.6 | 598.3 | 602.9 | 603.9 | 607.5 | 608.5 | 606.6 | 608.5 | 606.6 |
| 5°    | 595.6  | 600.2  | 603.9 | 609.4 | 613.1 | 617.7 | 616.8 | 614.0 | 614.0 | 609.4 | 616.8 |
| 7.5°  | 602.9  | 609.4  | 612.1 | 617.7 | 618.6 | 615.8 | 612.1 | 611.2 | 602.0 | 602.0 | 603.9 |
| 10°   | 613.1  | 618.6  | 621.4 | 623.2 | 617.7 | 613.1 | 605.7 | 601.1 | 597.4 | 593.7 | 594.6 |
| 12.5° | 620.4  | 626.0  | 626.0 | 619.5 | 613.1 | 605.7 | 599.2 | 590.0 | 587.3 | 582.6 | 582.6 |
| 15°   | 625.1  | 634.3  | 627.8 | 617.7 | 604.8 | 594.6 | 584.5 | 576.2 | 572.5 | 571.6 | 575.3 |
| 17.5° | 637.0  | 641.7  | 626.0 | 608.5 | 594.6 | 580.8 | 569.7 | 563.3 | 558.7 | 557.8 | 565.1 |
| 20°   | 650.9  | 647.2  | 620.4 | 598.3 | 582.6 | 564.2 | 555.0 | 553.1 | 551.3 | 556.8 | 556.8 |
| 22.5° | 664.7  | 658.2  | 614.9 | 590.0 | 565.1 | 552.2 | 543.9 | 549.5 | 550.4 | 554.1 | 557.8 |
| 25°   | 685.0  | 669.3  | 613.1 | 577.1 | 544.8 | 535.6 | 536.6 | 543.9 | 545.8 | 545.8 | 547.6 |
| 27.5° | 707.1  | 687.7  | 614.0 | 557.8 | 524.6 | 521.8 | 528.3 | 531.0 | 533.8 | 531.0 | 531.9 |
| 30°   | 738.5  | 707.1  | 609.4 | 535.6 | 507.1 | 511.7 | 515.3 | 514.4 | 502.4 | 499.7 | 501.5 |
| 32.5° | 784.5  | 733.8  | 605.7 | 518.1 | 497.8 | 497.8 | 494.1 | 483.1 | 471.1 | 460.0 | 463.7 |
| 35°   | 837.1  | 767.0  | 591.9 | 504.3 | 488.6 | 484.9 | 470.2 | 451.7 | 429.6 | 416.7 | 417.6 |
| 37.5° | 892.4  | 797.5  | 577.1 | 488.6 | 473.9 | 464.6 | 443.4 | 414.9 | 392.7 | 379.8 | 378.0 |
| 40°   | 964.3  | 831.6  | 555.0 | 467.4 | 453.6 | 438.8 | 414.9 | 383.5 | 361.4 | 351.2 | 356.8 |
| 42.5° | 1037.1 | 871.2  | 529.2 | 437.9 | 426.8 | 417.6 | 390.9 | 360.5 | 339.3 | 332.8 | 336.5 |
| 45°   | 1118.3 | 911.8  | 502.4 | 402.9 | 397.3 | 395.5 | 372.5 | 348.5 | 330.0 | 320.8 | 319.9 |
| 47.5° | 1201.3 | 954.2  | 465.6 | 371.5 | 368.8 | 380.7 | 363.2 | 343.0 | 327.3 | 312.5 | 311.6 |
| 50°   | 1294.4 | 995.7  | 415.8 | 331.9 | 344.8 | 372.5 | 366.0 | 343.9 | 317.1 | 294.1 | 290.4 |
| 52.5° | 1377.3 | 1010.4 | 363.2 | 300.5 | 326.4 | 373.4 | 368.8 | 338.3 | 303.3 | 275.7 | 272.0 |
| 55°   | 1433.6 | 985.5  | 318.1 | 272.9 | 312.5 | 366.9 | 365.1 | 330.0 | 289.5 | 260.0 | 256.3 |
| 57.5° | 1437.3 | 912.7  | 274.7 | 249.8 | 290.4 | 348.5 | 354.0 | 313.4 | 268.3 | 243.4 | 240.6 |
| 60°   | 1348.8 | 792.8  | 239.7 | 229.6 | 266.4 | 324.5 | 333.7 | 290.4 | 248.9 | 222.2 | 220.3 |
| 62.5° | 1150.5 | 634.3  | 206.5 | 207.4 | 243.4 | 292.2 | 309.8 | 271.0 | 229.6 | 203.7 | 201.0 |
| 65°   | 915.5  | 484.9  | 183.5 | 188.1 | 213.9 | 260.9 | 287.6 | 251.7 | 210.2 | 185.3 | 181.6 |
| 67.5° | 614.9  | 334.7  | 158.6 | 167.8 | 185.3 | 228.6 | 265.5 | 231.4 | 186.2 | 165.9 | 163.2 |
| 70°   | 293.2  | 194.5  | 136.4 | 147.5 | 158.6 | 193.6 | 233.2 | 202.8 | 166.9 | 150.3 | 149.3 |
| 72.5° | 163.2  | 124.5  | 118.0 | 126.3 | 132.8 | 162.3 | 197.3 | 183.5 | 149.3 | 142.9 | 142.0 |
| 75°   | 104.2  | 88.5   | 94.0  | 104.2 | 107.9 | 128.1 | 170.6 | 164.1 | 134.6 | 138.3 | 138.3 |
| 77.5° | 64.5   | 60.8   | 71.9  | 81.1  | 83.9  | 105.1 | 140.1 | 139.2 | 112.5 | 110.6 | 97.7  |
| 80°   | 41.5   | 40.6   | 51.6  | 52.5  | 57.2  | 80.2  | 111.6 | 106.9 | 84.8  | 77.4  | 72.8  |
| 82.5° | 22.1   | 23.0   | 31.3  | 33.2  | 32.3  | 48.9  | 76.5  | 75.6  | 62.7  | 54.4  | 51.6  |
| 85°   | 8.3    | 8.3    | 12.0  | 14.8  | 15.7  | 24.9  | 40.6  | 41.5  | 34.1  | 25.8  | 26.7  |
| 87.5° | 1.8    | 1.8    | 1.8   | 2.8   | 2.8   | 5.5   | 7.4   | 8.3   | 9.2   | 4.6   | 2.8   |
| 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

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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 2200K 7-step quadrangle

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### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

| λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 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

| $\lambda$<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               | 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

| $\lambda$<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               | 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)