

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: P1387952

Luminaire Tested: **VAL-T-SB1B-722-U-T4W**

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: P1387952  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 02/18/2026  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: VAL-T-SB1B-722-U-T4W  
Description: GALLEON II WALL SLIM HIGH DENSITY LED ARRAYS 1SQUARE 40W 70CRI  
2200K FIXTURE w/ TYPE IV WIDE 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               |

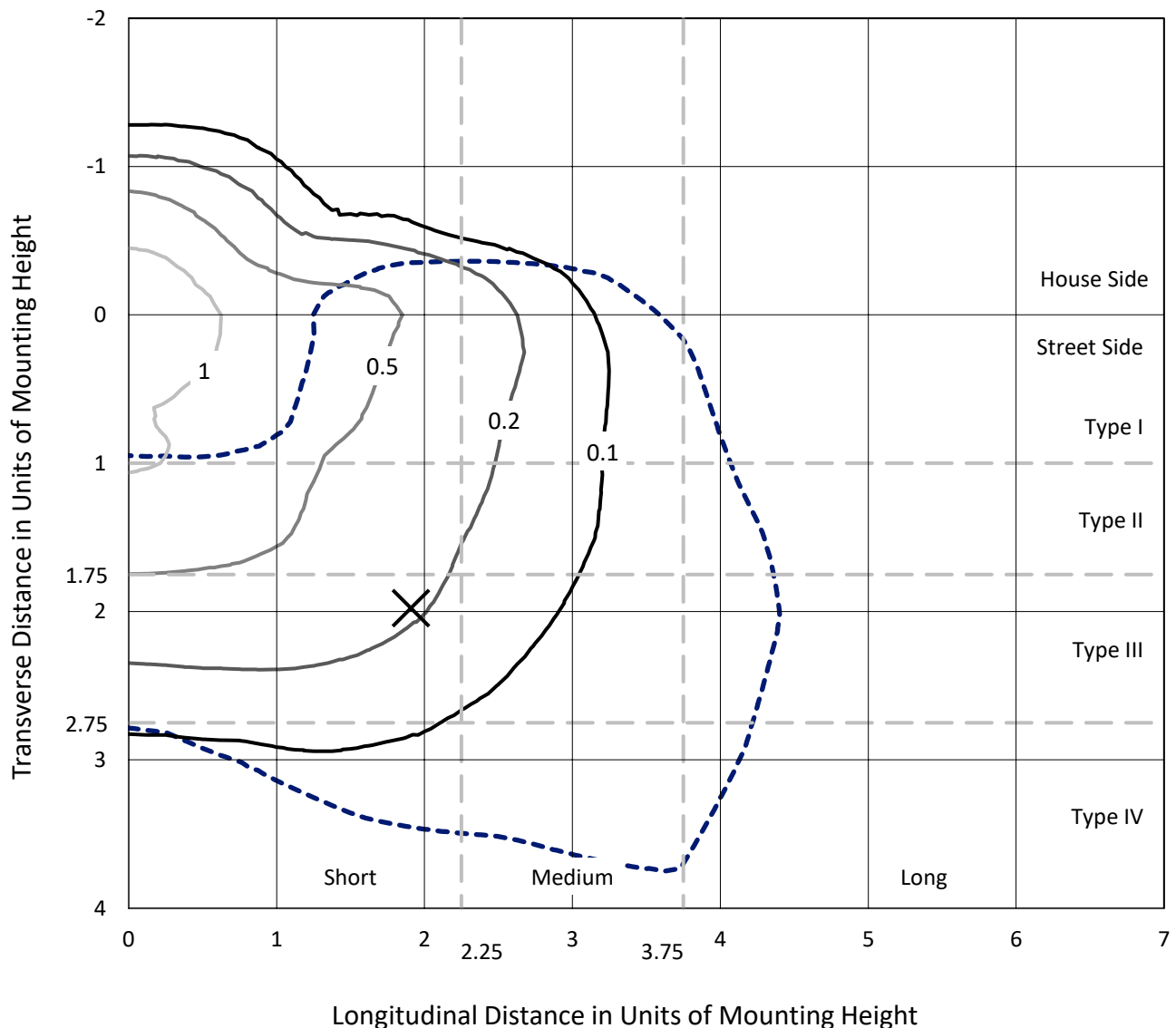
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4055.1 lumens  
Efficiency: N/A  
Efficacy: 101.4 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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 CATALOG NUMBER: VAL-T-SB1B-722-U-T4W

## Iso-Footcandle Lines of Horizontal Illumination

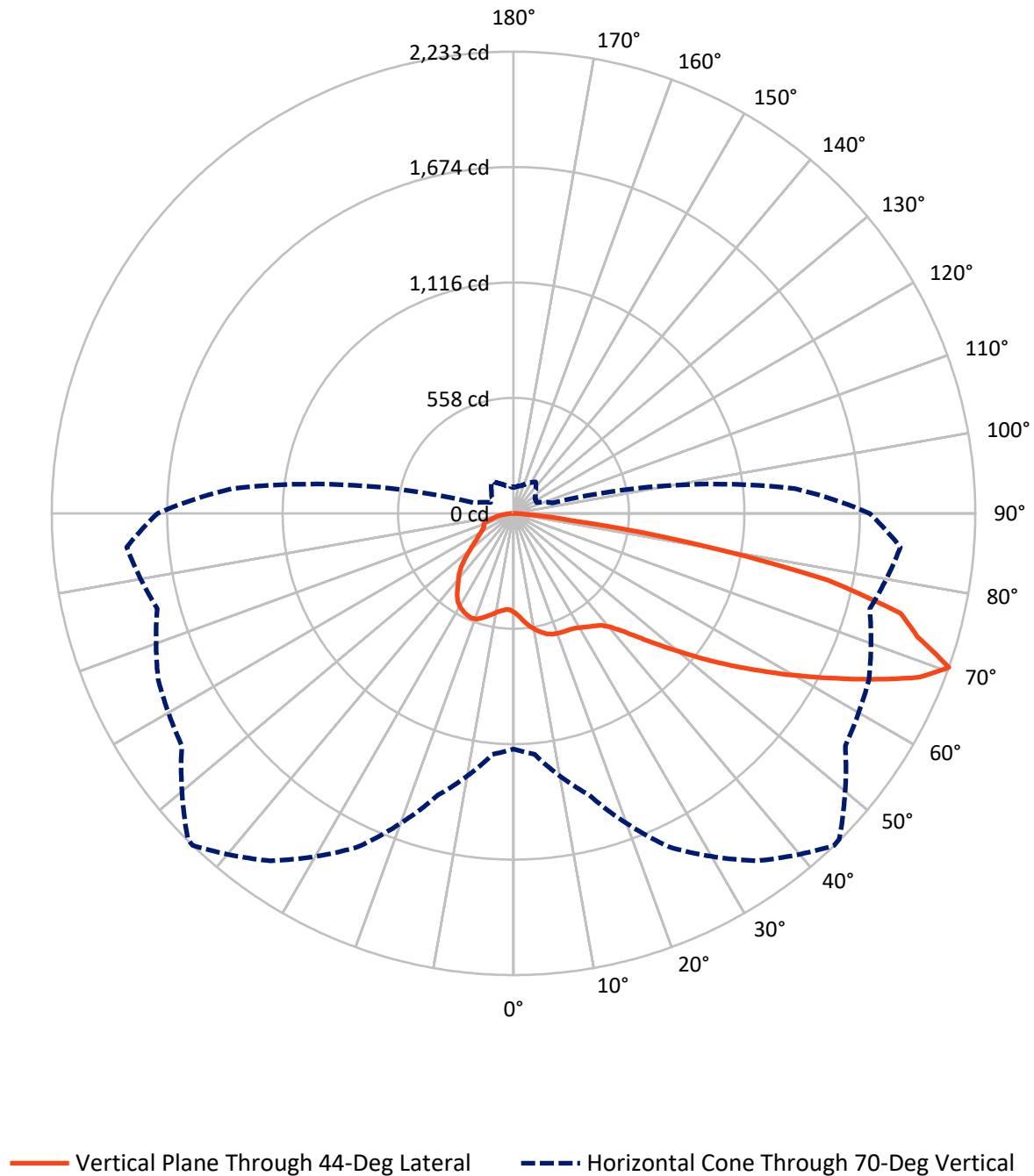
✕ Max cd  
 - - - 1/2 Max cd



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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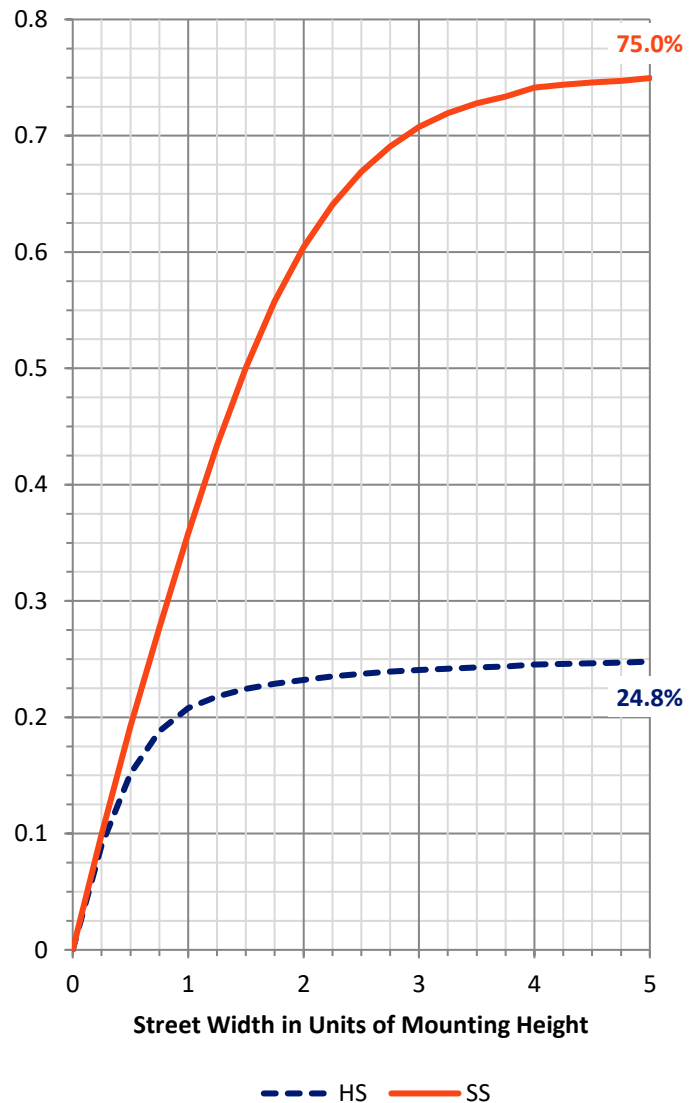
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 1016.1   | 0.0    | 1016.1 |
|                    | % Fixture | 25.1     | 0.0    | 25.1   |
| <b>Street Side</b> | Lumens    | 3039.0   | 0.0    | 3039.0 |
|                    | % Fixture | 74.9     | 0.0    | 74.9   |
| <b>Total</b>       | Lumens    | 4055.1   | 0.0    | 4055.1 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 48.4   | 1.2       |
| 10°-20°   | 158.8  | 3.9       |
| 20°-30°   | 273.2  | 6.7       |
| 30°-40°   | 385.1  | 9.5       |
| 40°-50°   | 532.9  | 13.1      |
| 50°-60°   | 791.4  | 19.5      |
| 60°-70°   | 1057.6 | 26.1      |
| 70°-80°   | 746.1  | 18.4      |
| 80°-90°   | 61.8   | 1.5       |
| 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°    | 4055.1 | 100.0     |
| 0°-180°   | 4055.1 | 100.0     |



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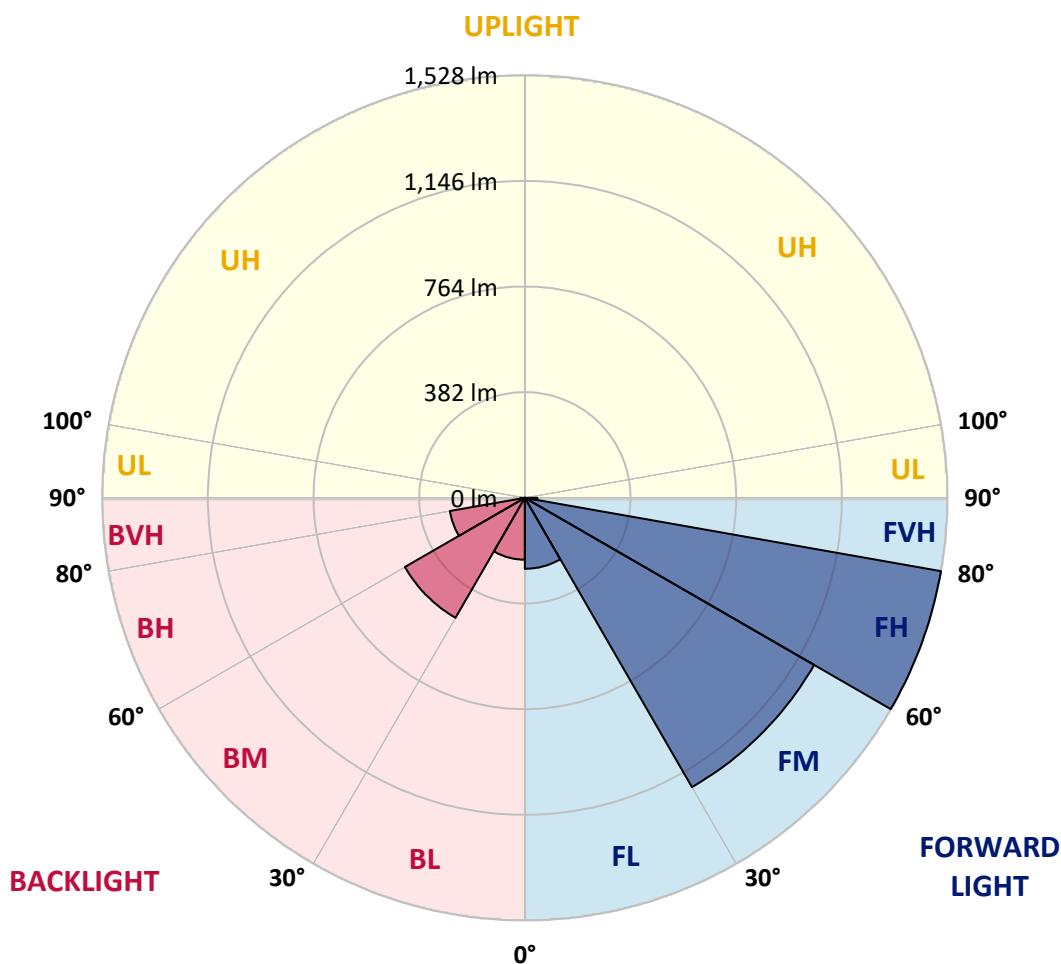
CATALOG NUMBER: VAL-T-SB1B-722-U-T4W

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 256.6  | 6.3       |                         |      |         |
| FM   | (30°-60°)   | 1208.3 | 29.8      |                         |      |         |
| FH   | (60°-80°)   | 1528.3 | 37.7      |                         |      | G1/1800 |
| FVH  | (80°-90°)   | 45.7   | 1.1       |                         |      | G1/100  |
| BL   | (0°-30°)    | 223.6  | 5.5       | B1/500                  |      |         |
| BM   | (30°-60°)   | 501.0  | 12.4      | B1/1000                 |      |         |
| BH   | (60°-80°)   | 275.4  | 6.8       | B1/500                  |      | G1/500  |
| BVH  | (80°-90°)   | 16.1   | 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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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 44°    | 45°    | 55°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 479.2  | 479.2  | 479.2  | 479.2  | 479.2  | 479.2  | 479.2  | 479.2  | 479.2  | 479.2  | 479.2  |
| 2.5°  | 514.6  | 511.7  | 508.7  | 507.7  | 503.8  | 497.9  | 497.9  | 495.9  | 491.0  | 487.1  | 484.1  |
| 5°    | 548.1  | 549.0  | 544.1  | 540.2  | 534.3  | 524.4  | 525.4  | 516.6  | 506.7  | 495.9  | 488.0  |
| 7.5°  | 580.5  | 580.5  | 574.6  | 569.7  | 561.8  | 550.0  | 550.0  | 536.3  | 524.4  | 509.7  | 498.9  |
| 10°   | 610.1  | 608.1  | 600.2  | 594.3  | 583.5  | 570.7  | 569.7  | 555.9  | 541.2  | 524.4  | 509.7  |
| 12.5° | 632.7  | 632.7  | 624.8  | 615.0  | 603.2  | 589.4  | 588.4  | 573.6  | 558.9  | 541.2  | 523.5  |
| 15°   | 654.3  | 649.4  | 642.5  | 629.7  | 616.0  | 605.1  | 603.2  | 590.4  | 575.6  | 559.9  | 540.2  |
| 17.5° | 662.2  | 660.2  | 651.4  | 638.6  | 625.8  | 614.0  | 614.0  | 602.2  | 591.4  | 575.6  | 555.9  |
| 20°   | 660.2  | 657.3  | 649.4  | 638.6  | 628.7  | 618.9  | 618.9  | 610.1  | 604.1  | 589.4  | 571.7  |
| 22.5° | 650.4  | 647.4  | 642.5  | 632.7  | 627.8  | 621.9  | 621.9  | 616.9  | 615.0  | 606.1  | 589.4  |
| 25°   | 647.4  | 645.5  | 638.6  | 629.7  | 624.8  | 623.8  | 624.8  | 625.8  | 627.8  | 620.9  | 607.1  |
| 27.5° | 649.4  | 649.4  | 643.5  | 634.7  | 628.7  | 629.7  | 630.7  | 636.6  | 642.5  | 638.6  | 626.8  |
| 30°   | 662.2  | 659.2  | 655.3  | 646.5  | 639.6  | 640.6  | 640.6  | 652.4  | 658.3  | 653.3  | 644.5  |
| 32.5° | 683.8  | 680.9  | 675.0  | 656.3  | 649.4  | 654.3  | 656.3  | 666.1  | 670.1  | 665.2  | 661.2  |
| 35°   | 734.0  | 737.0  | 717.3  | 683.8  | 665.2  | 669.1  | 671.1  | 677.9  | 682.9  | 680.9  | 677.0  |
| 37.5° | 825.5  | 826.5  | 801.9  | 741.9  | 698.6  | 686.8  | 687.8  | 697.6  | 703.5  | 696.6  | 693.7  |
| 40°   | 939.7  | 940.7  | 906.2  | 824.6  | 751.7  | 722.2  | 721.2  | 723.2  | 732.1  | 720.3  | 718.3  |
| 42.5° | 1063.7 | 1049.9 | 1020.4 | 926.9  | 830.5  | 781.3  | 772.4  | 766.5  | 777.3  | 762.6  | 752.7  |
| 45°   | 1181.7 | 1171.9 | 1131.5 | 1035.1 | 924.9  | 859.0  | 850.1  | 820.6  | 838.3  | 826.5  | 808.8  |
| 47.5° | 1280.1 | 1272.3 | 1241.8 | 1152.2 | 1032.2 | 952.5  | 938.7  | 892.4  | 923.9  | 918.0  | 896.4  |
| 50°   | 1352.9 | 1345.1 | 1324.4 | 1269.3 | 1168.0 | 1056.8 | 1044.0 | 987.9  | 1020.4 | 1031.2 | 1014.5 |
| 52.5° | 1406.1 | 1404.1 | 1396.2 | 1387.4 | 1305.7 | 1177.8 | 1163.0 | 1093.2 | 1146.3 | 1167.0 | 1162.1 |
| 55°   | 1486.8 | 1482.8 | 1485.8 | 1500.5 | 1453.3 | 1306.7 | 1285.0 | 1203.4 | 1276.2 | 1314.6 | 1322.4 |
| 57.5° | 1563.5 | 1563.5 | 1589.1 | 1627.5 | 1621.6 | 1445.4 | 1419.8 | 1332.3 | 1433.6 | 1452.3 | 1489.7 |
| 60°   | 1635.3 | 1642.2 | 1677.6 | 1762.3 | 1779.0 | 1596.0 | 1565.5 | 1480.9 | 1583.2 | 1603.8 | 1671.7 |
| 62.5° | 1604.8 | 1621.6 | 1734.7 | 1871.5 | 1926.6 | 1757.3 | 1726.8 | 1644.2 | 1751.4 | 1726.8 | 1787.8 |
| 65°   | 1449.4 | 1474.9 | 1650.1 | 1878.4 | 2070.2 | 1934.5 | 1908.9 | 1828.2 | 1843.9 | 1745.5 | 1852.8 |
| 67.5° | 1286.0 | 1323.4 | 1527.1 | 1794.7 | 2107.6 | 2115.5 | 2092.9 | 1941.3 | 1842.9 | 1765.2 | 1918.7 |
| 70°   | 1139.4 | 1169.9 | 1410.0 | 1780.0 | 2051.5 | 2232.6 | 2227.7 | 1958.1 | 1896.1 | 1782.9 | 1877.4 |
| 72.5° | 799.0  | 841.3  | 1087.3 | 1643.2 | 2068.3 | 2041.7 | 2030.9 | 2075.2 | 1935.4 | 1718.0 | 1663.9 |
| 75°   | 287.3  | 304.0  | 563.8  | 1111.9 | 1644.2 | 1933.5 | 1942.3 | 1922.6 | 1897.1 | 1538.9 | 1250.6 |
| 77.5° | 85.6   | 91.5   | 160.4  | 440.8  | 922.0  | 1551.7 | 1566.5 | 1514.3 | 1425.8 | 927.9  | 473.3  |
| 80°   | 46.2   | 50.2   | 75.8   | 128.9  | 345.4  | 875.7  | 916.1  | 775.4  | 513.6  | 245.0  | 106.3  |
| 82.5° | 22.6   | 24.6   | 39.4   | 63.0   | 148.6  | 278.5  | 279.4  | 248.0  | 167.3  | 73.8   | 39.4   |
| 85°   | 7.9    | 8.9    | 12.8   | 23.6   | 51.2   | 57.1   | 57.1   | 53.1   | 49.2   | 36.4   | 17.7   |
| 87.5° | 2.0    | 2.0    | 3.0    | 3.9    | 4.9    | 5.9    | 5.9    | 6.9    | 7.9    | 8.9    | 8.9    |
| 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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**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 479.2  | 479.2  | 479.2 | 479.2 | 479.2 | 479.2 | 479.2 | 479.2 | 479.2 | 479.2 | 479.2 |
| 2.5°  | 482.1  | 478.2  | 475.3 | 472.3 | 470.3 | 466.4 | 465.4 | 465.4 | 464.4 | 465.4 | 464.4 |
| 5°    | 485.1  | 479.2  | 474.3 | 470.3 | 468.4 | 466.4 | 466.4 | 467.4 | 466.4 | 467.4 | 466.4 |
| 7.5°  | 491.0  | 487.1  | 482.1 | 476.2 | 475.3 | 474.3 | 475.3 | 477.2 | 478.2 | 479.2 | 477.2 |
| 10°   | 502.8  | 496.9  | 490.0 | 487.1 | 485.1 | 484.1 | 487.1 | 491.0 | 492.0 | 493.9 | 492.0 |
| 12.5° | 516.6  | 509.7  | 504.8 | 497.9 | 497.9 | 498.9 | 501.8 | 506.7 | 509.7 | 512.6 | 509.7 |
| 15°   | 532.3  | 525.4  | 518.5 | 512.6 | 511.7 | 513.6 | 518.5 | 523.5 | 524.4 | 525.4 | 523.5 |
| 17.5° | 548.1  | 541.2  | 532.3 | 525.4 | 524.4 | 529.4 | 531.3 | 531.3 | 529.4 | 529.4 | 526.4 |
| 20°   | 563.8  | 558.9  | 550.0 | 537.2 | 541.2 | 543.1 | 537.2 | 532.3 | 529.4 | 528.4 | 525.4 |
| 22.5° | 582.5  | 574.6  | 564.8 | 551.0 | 554.0 | 546.1 | 535.3 | 533.3 | 530.4 | 531.3 | 528.4 |
| 25°   | 600.2  | 595.3  | 579.5 | 561.8 | 554.0 | 541.2 | 534.3 | 534.3 | 531.3 | 533.3 | 532.3 |
| 27.5° | 620.9  | 615.0  | 593.3 | 567.7 | 547.1 | 533.3 | 532.3 | 532.3 | 527.4 | 528.4 | 527.4 |
| 30°   | 641.5  | 632.7  | 604.1 | 562.8 | 530.4 | 521.5 | 524.4 | 523.5 | 521.5 | 524.4 | 526.4 |
| 32.5° | 659.2  | 652.4  | 610.1 | 551.0 | 509.7 | 505.8 | 507.7 | 512.6 | 517.6 | 520.5 | 524.4 |
| 35°   | 677.9  | 670.1  | 615.0 | 530.4 | 487.1 | 481.2 | 480.2 | 494.9 | 503.8 | 508.7 | 511.7 |
| 37.5° | 697.6  | 687.8  | 617.9 | 507.7 | 465.4 | 447.7 | 450.7 | 462.5 | 472.3 | 481.2 | 488.0 |
| 40°   | 724.2  | 714.4  | 621.9 | 483.1 | 442.8 | 419.2 | 415.2 | 418.2 | 425.1 | 437.9 | 444.7 |
| 42.5° | 763.5  | 747.8  | 621.9 | 451.6 | 410.3 | 393.6 | 379.8 | 369.0 | 365.0 | 372.9 | 376.9 |
| 45°   | 817.7  | 794.1  | 617.9 | 419.2 | 372.9 | 361.1 | 338.5 | 320.8 | 305.0 | 297.2 | 295.2 |
| 47.5° | 907.2  | 865.9  | 614.0 | 387.7 | 337.5 | 322.7 | 295.2 | 274.5 | 251.9 | 231.2 | 226.3 |
| 50°   | 1027.2 | 961.3  | 615.0 | 356.2 | 302.1 | 282.4 | 257.8 | 236.1 | 209.6 | 189.9 | 187.0 |
| 52.5° | 1185.7 | 1095.1 | 620.9 | 321.8 | 267.6 | 249.9 | 229.3 | 207.6 | 181.0 | 166.3 | 165.3 |
| 55°   | 1369.7 | 1256.5 | 641.5 | 283.4 | 236.1 | 222.4 | 207.6 | 187.0 | 164.3 | 151.5 | 149.6 |
| 57.5° | 1584.2 | 1443.5 | 682.9 | 243.0 | 207.6 | 202.7 | 190.9 | 171.2 | 152.5 | 139.7 | 137.8 |
| 60°   | 1795.7 | 1624.5 | 714.4 | 207.6 | 185.0 | 185.0 | 174.2 | 159.4 | 133.8 | 123.0 | 121.0 |
| 62.5° | 1894.1 | 1680.6 | 654.3 | 179.1 | 167.3 | 170.2 | 163.3 | 142.7 | 134.8 | 129.9 | 126.9 |
| 65°   | 1917.7 | 1649.1 | 492.0 | 157.4 | 152.5 | 162.4 | 151.5 | 152.5 | 145.6 | 140.7 | 137.8 |
| 67.5° | 1889.2 | 1559.6 | 314.9 | 138.7 | 141.7 | 152.5 | 167.3 | 168.3 | 145.6 | 134.8 | 132.8 |
| 70°   | 1721.9 | 1367.7 | 193.8 | 123.0 | 126.9 | 150.5 | 186.0 | 158.4 | 137.8 | 128.9 | 125.0 |
| 72.5° | 1436.6 | 1128.6 | 135.8 | 108.2 | 108.2 | 142.7 | 167.3 | 148.6 | 126.9 | 122.0 | 117.1 |
| 75°   | 1008.6 | 763.5  | 99.4  | 90.5  | 90.5  | 111.2 | 154.5 | 135.8 | 119.1 | 121.0 | 119.1 |
| 77.5° | 343.4  | 248.0  | 71.8  | 69.9  | 66.9  | 95.4  | 137.8 | 129.9 | 110.2 | 104.3 | 96.4  |
| 80°   | 101.3  | 79.7   | 53.1  | 49.2  | 48.2  | 76.7  | 116.1 | 95.4  | 78.7  | 71.8  | 66.9  |
| 82.5° | 39.4   | 35.4   | 34.4  | 31.5  | 30.5  | 51.2  | 76.7  | 65.9  | 59.0  | 49.2  | 48.2  |
| 85°   | 15.7   | 15.7   | 17.7  | 17.7  | 15.7  | 27.6  | 46.2  | 36.4  | 34.4  | 30.5  | 29.5  |
| 87.5° | 7.9    | 7.9    | 6.9   | 4.9   | 4.9   | 5.9   | 4.9   | 4.9   | 4.9   | 4.9   | 4.9   |
| 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 (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 27                       | NR            | 620    | 966                      | NR            | 750    | 46                       | NR            | 880    | 1                        | NR            |
| 365    | 0                        | NR            | 495    | 42                       | NR            | 625    | 930                      | NR            | 755    | 39                       | NR            | 885    | 1                        | NR            |
| 370    | 0                        | NR            | 500    | 67                       | NR            | 630    | 888                      | NR            | 760    | 34                       | NR            | 890    | 1                        | NR            |
| 375    | 0                        | NR            | 505    | 101                      | NR            | 635    | 835                      | NR            | 765    | 30                       | NR            | 895    | 1                        | NR            |
| 380    | 0                        | NR            | 510    | 139                      | NR            | 640    | 778                      | NR            | 770    | 26                       | NR            | 900    | 1                        | NR            |
| 385    | 0                        | NR            | 515    | 183                      | NR            | 645    | 717                      | NR            | 775    | 22                       | NR            | 905    | 1                        | NR            |
| 390    | 0                        | NR            | 520    | 224                      | NR            | 650    | 656                      | NR            | 780    | 19                       | NR            | 910    | 1                        | NR            |
| 395    | 0                        | NR            | 525    | 262                      | NR            | 655    | 595                      | NR            | 785    | 17                       | NR            | 915    | 1                        | NR            |
| 400    | 1                        | NR            | 530    | 299                      | NR            | 660    | 536                      | NR            | 790    | 15                       | NR            | 920    | 1                        | NR            |
| 405    | 3                        | NR            | 535    | 332                      | NR            | 665    | 480                      | NR            | 795    | 13                       | NR            | 925    | 1                        | NR            |
| 410    | 7                        | NR            | 540    | 365                      | NR            | 670    | 425                      | NR            | 800    | 11                       | NR            | 930    | 1                        | NR            |
| 415    | 17                       | NR            | 545    | 400                      | NR            | 675    | 376                      | NR            | 805    | 10                       | NR            | 935    | 0                        | NR            |
| 420    | 36                       | NR            | 550    | 437                      | NR            | 680    | 332                      | NR            | 810    | 8                        | NR            | 940    | 0                        | NR            |
| 425    | 67                       | NR            | 555    | 479                      | NR            | 685    | 291                      | NR            | 815    | 8                        | NR            | 945    | 0                        | NR            |
| 430    | 105                      | NR            | 560    | 525                      | NR            | 690    | 255                      | NR            | 820    | 7                        | NR            | 950    | 0                        | NR            |
| 435    | 141                      | NR            | 565    | 579                      | NR            | 695    | 221                      | NR            | 825    | 6                        | NR            | 955    | 0                        | NR            |
| 440    | 169                      | NR            | 570    | 639                      | NR            | 700    | 192                      | NR            | 830    | 5                        | NR            | 960    | 0                        | NR            |
| 445    | 173                      | NR            | 575    | 703                      | NR            | 705    | 167                      | NR            | 835    | 4                        | NR            | 965    | 0                        | NR            |
| 450    | 136                      | NR            | 580    | 769                      | NR            | 710    | 144                      | NR            | 840    | 4                        | NR            | 970    | 0                        | NR            |
| 455    | 80                       | NR            | 585    | 832                      | NR            | 715    | 125                      | NR            | 845    | 3                        | NR            | 975    | 0                        | NR            |
| 460    | 45                       | NR            | 590    | 890                      | NR            | 720    | 109                      | NR            | 850    | 3                        | NR            | 980    | 0                        | NR            |
| 465    | 32                       | NR            | 595    | 937                      | NR            | 725    | 94                       | NR            | 855    | 3                        | NR            | 985    | 0                        | NR            |
| 470    | 23                       | NR            | 600    | 972                      | NR            | 730    | 81                       | NR            | 860    | 2                        | NR            | 990    | 0                        | NR            |
| 475    | 18                       | NR            | 605    | 992                      | NR            | 735    | 70                       | NR            | 865    | 2                        | NR            | 995    | 0                        | NR            |
| 480    | 18                       | NR            | 610    | 998                      | NR            | 740    | 61                       | NR            | 870    | 2                        | NR            | 1000   | 0                        | NR            |
| 485    | 20                       | NR            | 615    | 990                      | NR            | 745    | 53                       | NR            | 875    | 2                        | NR            |        |                          |               |

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### 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)