

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



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

Test Report Prepared for  
Cooper Lighting Solutions  
(formerly Eaton)

Brand: McGRAW-EDISON

Report Number: P385409

Luminaire Tested: **GPC-SA1A-722-U-SL4**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P385409  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-24)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: McGRAW-EDISON  
Catalog Number: GPC-SA1A-722-U-SL4  
Description: GALLEON PEDESTRIAN LUMINAIRE  
(1) 70 CRI, 2200K, 615mA LIGHTSQUARE WITH 16 LEDS AND TYPE IV SPILL LIGHT  
ELIMINATOR OPTICS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3476 lumens  
Efficiency: N/A  
Efficacy: 102.2 lumens/watt  
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B1 - U0 - G2

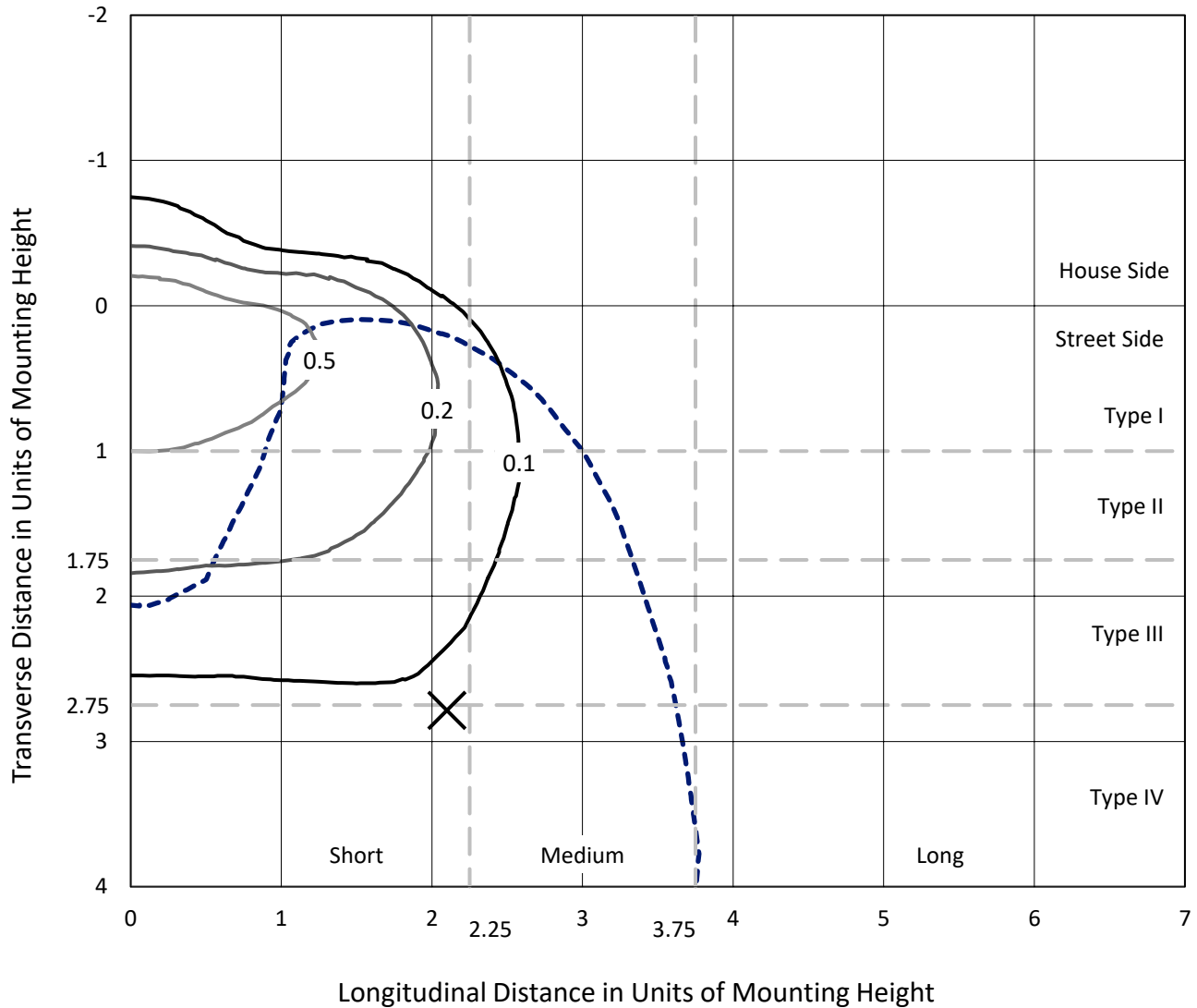
Input Watts (W): 34  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT



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### Iso-Footcandle Lines of Horizontal Illumination

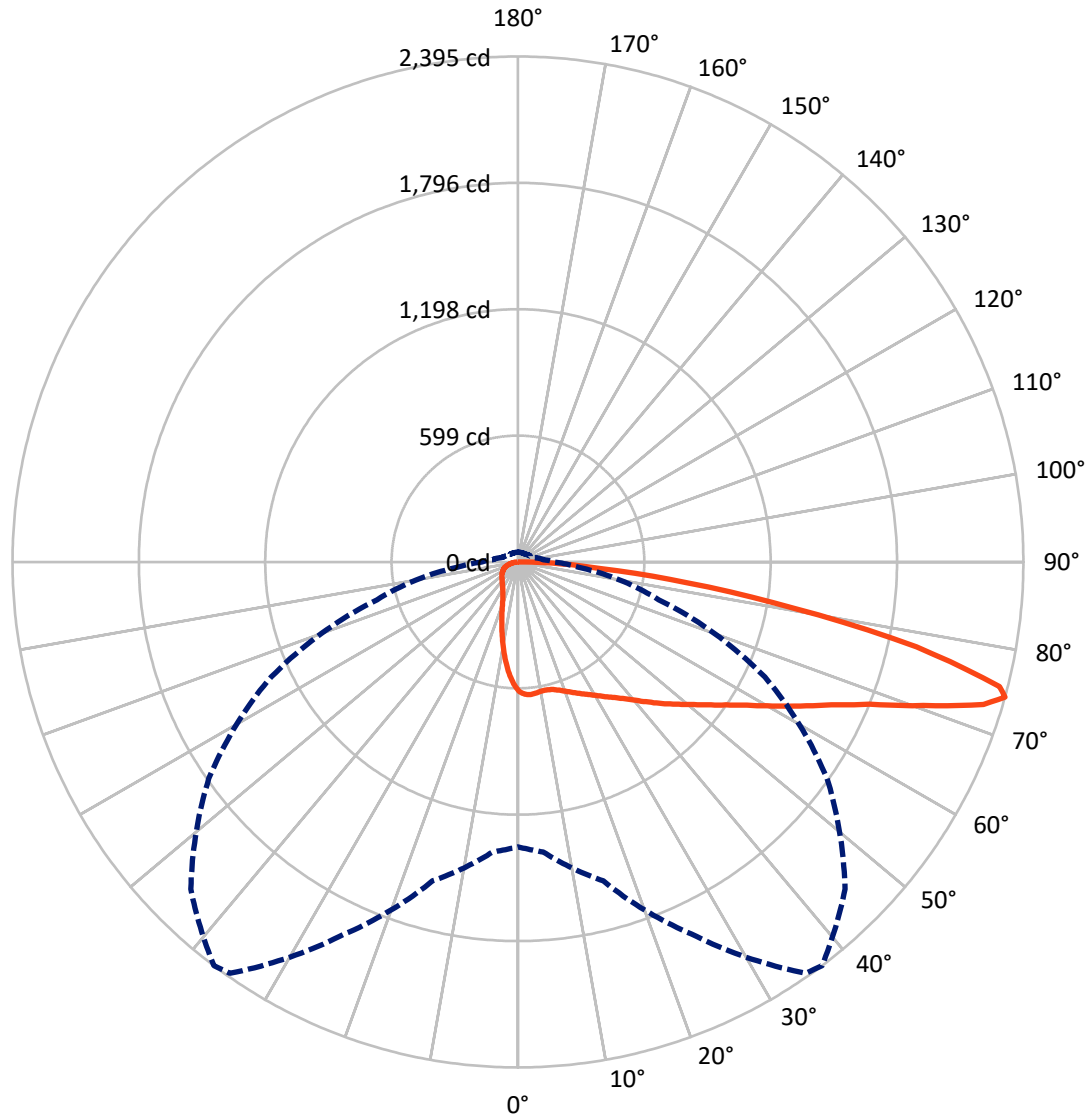
✕ Max cd  
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 1 fc  
 Type IV - Short - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 37-Deg Lateral      - - - Horizontal Cone Through 74-Deg Vertical

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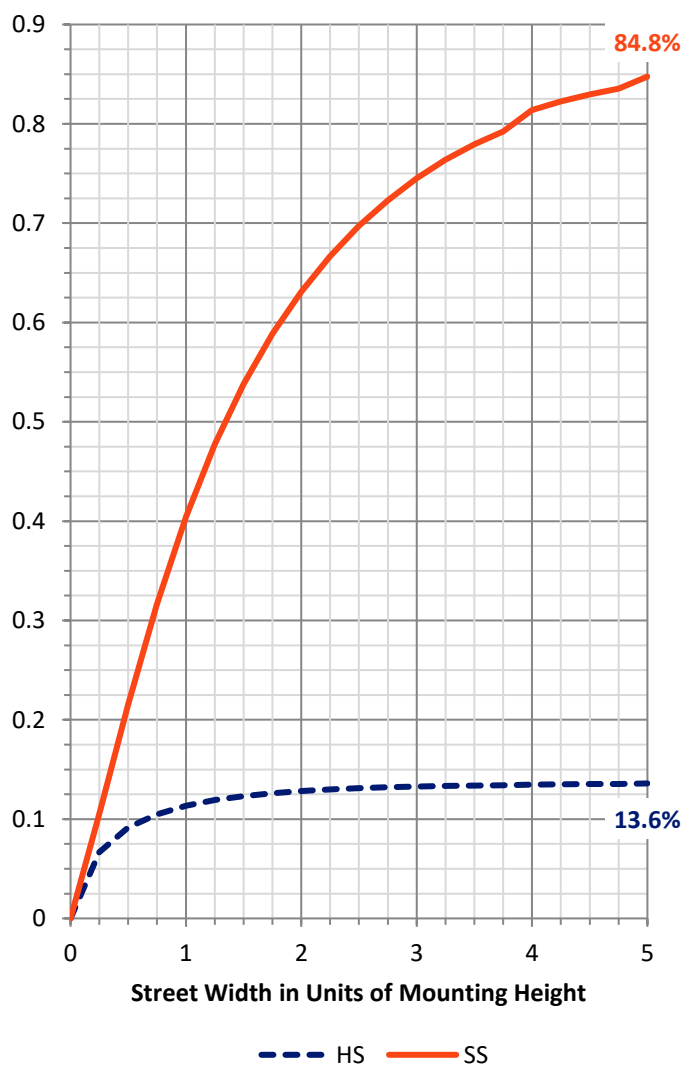
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 478.3    | 0.0    | 478.3  |
|                    | % Fixture | 13.8     | 0.0    | 13.8   |
| <b>Street Side</b> | Lumens    | 2997.7   | 0.0    | 2997.7 |
|                    | % Fixture | 86.2     | 0.0    | 86.2   |
| <b>Total</b>       | Lumens    | 3476.0   | 0.0    | 3476.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 53.9   | 1.6       |
| 10°-20°   | 138.2  | 4.0       |
| 20°-30°   | 213.0  | 6.1       |
| 30°-40°   | 309.7  | 8.9       |
| 40°-50°   | 455.9  | 13.1      |
| 50°-60°   | 640.2  | 18.4      |
| 60°-70°   | 810.3  | 23.3      |
| 70°-80°   | 713.5  | 20.5      |
| 80°-90°   | 141.1  | 4.1       |
| 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°    | 3476.0 | 100.0     |
| 0°-180°   | 3476.0 | 100.0     |

**Coefficient of Utilization**

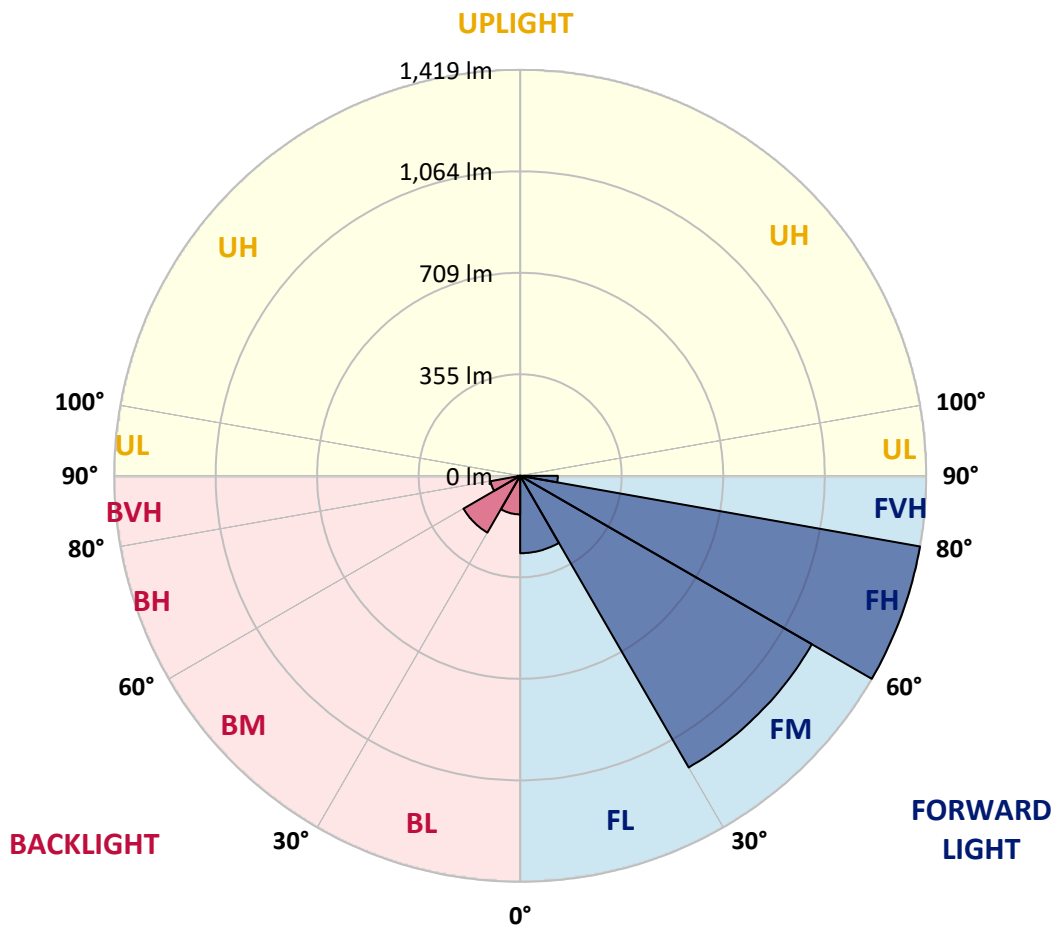


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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone           | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|----------------|--------|-----------|-------------------------|------|---------|
|                |        |           | B                       | U    | G       |
| FL (0°-30°)    | 270.5  | 7.8       |                         |      |         |
| FM (30°-60°)   | 1177.0 | 33.9      |                         |      |         |
| FH (60°-80°)   | 1418.7 | 40.8      |                         |      | G1/1800 |
| FVH (80°-90°)  | 131.5  | 3.8       |                         |      | G2/225  |
| BL (0°-30°)    | 134.7  | 3.9       | B1/500                  |      |         |
| BM (30°-60°)   | 228.9  | 6.6       | B1/1000                 |      |         |
| BH (60°-80°)   | 105.1  | 3.0       | B0/110                  |      | G0/110  |
| BVH (80°-90°)  | 9.6    | 0.3       |                         |      | G0/10   |
| UL (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B1-U0-G2**  
 Type IV Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 37°    | 45°    | 55°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 612.5  | 612.5  | 612.5  | 612.5  | 612.5  | 612.5  | 612.5  | 612.5  | 612.5  | 612.5  | 612.5  |
| 2.5°  | 633.4  | 633.5  | 633.4  | 632.4  | 630.1  | 628.1  | 626.5  | 624.2  | 619.1  | 615.2  | 609.3  |
| 5°    | 639.4  | 638.7  | 638.2  | 636.3  | 632.7  | 630.5  | 627.4  | 623.0  | 614.5  | 606.7  | 597.2  |
| 7.5°  | 636.6  | 635.7  | 634.6  | 632.4  | 628.3  | 626.4  | 622.1  | 616.4  | 606.2  | 595.9  | 582.2  |
| 10°   | 627.9  | 627.6  | 627.2  | 626.7  | 623.1  | 621.6  | 617.7  | 611.6  | 601.6  | 589.1  | 573.0  |
| 12.5° | 618.2  | 618.8  | 620.8  | 623.4  | 621.8  | 621.0  | 618.6  | 614.4  | 604.1  | 590.7  | 571.3  |
| 15°   | 612.1  | 613.8  | 619.1  | 625.8  | 627.2  | 626.9  | 626.3  | 623.6  | 612.7  | 597.8  | 575.2  |
| 17.5° | 610.0  | 612.8  | 622.9  | 634.0  | 637.9  | 638.8  | 639.0  | 634.4  | 622.3  | 606.5  | 579.3  |
| 20°   | 613.8  | 617.4  | 632.0  | 647.4  | 653.6  | 654.1  | 653.0  | 644.9  | 631.3  | 613.9  | 581.5  |
| 22.5° | 625.3  | 628.5  | 646.9  | 664.1  | 671.2  | 672.0  | 668.7  | 656.4  | 640.9  | 622.7  | 584.5  |
| 25°   | 647.5  | 651.4  | 669.8  | 687.0  | 690.7  | 690.8  | 686.0  | 670.9  | 653.4  | 635.1  | 591.2  |
| 27.5° | 676.4  | 680.3  | 696.8  | 713.7  | 711.8  | 710.7  | 704.2  | 689.0  | 669.6  | 652.1  | 602.9  |
| 30°   | 708.6  | 712.9  | 728.5  | 740.5  | 735.9  | 733.7  | 728.4  | 708.8  | 692.3  | 675.4  | 620.9  |
| 32.5° | 741.9  | 745.8  | 759.5  | 767.7  | 761.8  | 760.9  | 752.9  | 735.0  | 721.8  | 710.9  | 650.0  |
| 35°   | 776.0  | 778.9  | 792.3  | 797.0  | 789.1  | 788.9  | 786.7  | 770.3  | 762.0  | 767.1  | 692.4  |
| 37.5° | 810.9  | 811.7  | 823.2  | 823.4  | 821.1  | 822.1  | 824.4  | 814.1  | 816.4  | 832.5  | 747.5  |
| 40°   | 842.0  | 844.0  | 852.3  | 854.9  | 858.9  | 862.4  | 874.0  | 867.3  | 885.3  | 913.7  | 816.1  |
| 42.5° | 865.1  | 868.9  | 882.2  | 888.8  | 901.9  | 907.3  | 923.7  | 930.0  | 966.2  | 1008.8 | 897.6  |
| 45°   | 884.5  | 890.4  | 911.8  | 925.4  | 947.6  | 957.0  | 980.5  | 1001.5 | 1057.7 | 1112.0 | 983.5  |
| 47.5° | 905.6  | 913.1  | 939.9  | 965.8  | 995.9  | 1006.6 | 1049.3 | 1080.7 | 1155.2 | 1215.9 | 1064.4 |
| 50°   | 936.6  | 942.3  | 968.5  | 1009.3 | 1046.9 | 1060.6 | 1119.7 | 1164.7 | 1254.4 | 1314.8 | 1134.6 |
| 52.5° | 979.8  | 977.6  | 999.7  | 1056.9 | 1107.4 | 1124.3 | 1194.9 | 1254.1 | 1354.9 | 1404.3 | 1193.8 |
| 55°   | 1023.3 | 1019.6 | 1035.1 | 1106.8 | 1177.9 | 1195.7 | 1277.7 | 1343.8 | 1450.6 | 1484.9 | 1239.2 |
| 57.5° | 1071.6 | 1064.6 | 1077.7 | 1163.0 | 1258.2 | 1279.4 | 1370.4 | 1439.2 | 1544.6 | 1550.0 | 1268.1 |
| 60°   | 1121.5 | 1112.0 | 1126.7 | 1232.6 | 1360.2 | 1385.2 | 1478.9 | 1532.2 | 1633.3 | 1602.2 | 1277.4 |
| 62.5° | 1165.0 | 1158.4 | 1181.1 | 1310.4 | 1475.2 | 1502.6 | 1585.4 | 1631.2 | 1720.7 | 1623.8 | 1243.9 |
| 65°   | 1203.1 | 1204.2 | 1243.4 | 1397.8 | 1603.4 | 1632.6 | 1707.6 | 1753.1 | 1789.5 | 1611.0 | 1165.4 |
| 67.5° | 1248.5 | 1254.8 | 1321.6 | 1512.9 | 1764.8 | 1796.8 | 1885.4 | 1886.1 | 1827.9 | 1535.6 | 1010.9 |
| 70°   | 1314.8 | 1327.6 | 1429.3 | 1672.6 | 1994.2 | 2038.3 | 2106.6 | 1964.2 | 1773.9 | 1331.1 | 795.4  |
| 72.5° | 1373.6 | 1397.6 | 1543.8 | 1855.2 | 2273.9 | 2307.3 | 2236.0 | 1919.2 | 1548.3 | 997.5  | 495.5  |
| 74°   | 1349.7 | 1379.4 | 1564.6 | 1945.2 | 2379.2 | 2395.2 | 2192.3 | 1787.7 | 1290.9 | 690.8  | 288.0  |
| 75°   | 1298.3 | 1330.6 | 1534.2 | 1944.4 | 2365.8 | 2356.9 | 2086.8 | 1637.4 | 1063.2 | 471.2  | 191.6  |
| 77.5° | 1047.7 | 1081.9 | 1292.7 | 1666.4 | 1939.9 | 1931.4 | 1603.0 | 1098.4 | 465.6  | 154.5  | 97.3   |
| 80°   | 609.2  | 635.2  | 802.5  | 1058.3 | 1308.1 | 1323.4 | 1054.2 | 543.5  | 183.2  | 86.8   | 66.0   |
| 82.5° | 270.6  | 288.6  | 387.7  | 540.2  | 789.4  | 809.1  | 552.1  | 284.8  | 113.1  | 52.8   | 39.7   |
| 85°   | 177.5  | 190.9  | 235.3  | 257.3  | 375.9  | 389.4  | 270.2  | 221.7  | 74.7   | 29.0   | 29.1   |
| 87.5° | 127.7  | 140.6  | 174.8  | 152.7  | 172.5  | 163.3  | 147.1  | 205.2  | 30.0   | 16.5   | 9.8    |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |



REPORT NUMBER: P385409  
 CATALOG NUMBER: GPC-SA1A-722-U-SL4

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 612.5  | 612.5 | 612.5 | 612.5 | 612.5 | 612.5 | 612.5 | 612.5 | 612.5 | 612.5 | 612.5 |
| 2.5°  | 606.7  | 604.7 | 600.3 | 592.0 | 587.4 | 583.4 | 576.9 | 573.2 | 571.4 | 571.3 | 572.1 |
| 5°    | 591.6  | 587.1 | 575.7 | 561.8 | 550.6 | 540.5 | 527.8 | 520.3 | 514.9 | 511.7 | 512.5 |
| 7.5°  | 574.1  | 567.0 | 549.2 | 526.9 | 509.0 | 489.3 | 469.8 | 458.2 | 449.1 | 442.4 | 443.6 |
| 10°   | 562.1  | 552.3 | 526.3 | 494.2 | 464.4 | 435.8 | 409.0 | 392.9 | 380.2 | 370.4 | 371.1 |
| 12.5° | 558.1  | 544.9 | 508.7 | 465.9 | 424.1 | 385.0 | 349.9 | 325.3 | 312.2 | 301.1 | 301.9 |
| 15°   | 558.7  | 541.0 | 494.1 | 440.4 | 387.9 | 338.6 | 296.1 | 267.3 | 249.5 | 241.8 | 241.9 |
| 17.5° | 559.2  | 536.4 | 478.6 | 413.1 | 352.0 | 295.2 | 249.0 | 219.9 | 203.1 | 196.0 | 196.2 |
| 20°   | 557.6  | 529.1 | 459.5 | 381.8 | 314.6 | 255.4 | 210.7 | 186.0 | 173.3 | 167.7 | 167.7 |
| 22.5° | 555.5  | 520.4 | 438.0 | 350.3 | 277.6 | 220.9 | 183.3 | 164.4 | 157.1 | 153.4 | 153.3 |
| 25°   | 556.5  | 513.9 | 415.9 | 318.0 | 243.5 | 193.3 | 165.1 | 152.6 | 147.7 | 145.3 | 145.2 |
| 27.5° | 561.8  | 510.8 | 395.6 | 285.8 | 213.8 | 172.6 | 152.8 | 144.0 | 140.8 | 139.3 | 139.3 |
| 30°   | 571.3  | 510.8 | 374.4 | 258.4 | 189.1 | 157.3 | 143.4 | 137.4 | 135.2 | 134.2 | 134.2 |
| 32.5° | 588.0  | 513.6 | 354.0 | 231.2 | 169.3 | 145.3 | 135.5 | 131.5 | 129.8 | 129.3 | 129.3 |
| 35°   | 616.6  | 523.2 | 334.0 | 205.5 | 153.4 | 135.5 | 128.1 | 125.7 | 124.5 | 124.4 | 124.8 |
| 37.5° | 656.9  | 542.7 | 315.3 | 186.5 | 142.2 | 127.6 | 121.8 | 120.0 | 119.3 | 119.9 | 120.4 |
| 40°   | 707.6  | 569.1 | 298.3 | 169.3 | 133.6 | 121.2 | 116.1 | 114.9 | 114.5 | 115.3 | 116.1 |
| 42.5° | 768.8  | 604.9 | 284.3 | 157.0 | 127.0 | 115.8 | 111.2 | 109.7 | 109.3 | 110.3 | 111.3 |
| 45°   | 835.1  | 643.3 | 274.5 | 147.8 | 121.8 | 111.8 | 106.9 | 105.3 | 104.6 | 105.1 | 106.2 |
| 47.5° | 895.3  | 679.7 | 270.6 | 141.3 | 116.9 | 108.4 | 103.1 | 101.1 | 99.9  | 99.7  | 100.5 |
| 50°   | 946.1  | 706.7 | 272.4 | 137.4 | 113.0 | 104.6 | 99.4  | 97.2  | 95.4  | 94.3  | 94.9  |
| 52.5° | 983.1  | 723.8 | 274.1 | 135.7 | 110.0 | 100.4 | 95.4  | 93.3  | 90.9  | 89.0  | 89.0  |
| 55°   | 1009.9 | 727.7 | 270.4 | 134.3 | 107.6 | 95.9  | 90.9  | 88.9  | 86.4  | 84.4  | 84.1  |
| 57.5° | 1020.4 | 716.7 | 256.3 | 132.4 | 106.0 | 91.6  | 86.1  | 84.6  | 82.5  | 80.1  | 80.0  |
| 60°   | 1006.2 | 682.6 | 229.1 | 128.2 | 104.0 | 88.0  | 81.3  | 80.3  | 79.3  | 77.0  | 76.9  |
| 62.5° | 949.2  | 607.9 | 193.9 | 119.7 | 99.8  | 84.2  | 76.9  | 77.4  | 77.5  | 75.9  | 75.7  |
| 65°   | 845.7  | 505.3 | 159.7 | 108.7 | 93.5  | 79.7  | 72.4  | 74.7  | 76.0  | 75.8  | 75.4  |
| 67.5° | 695.4  | 393.3 | 135.3 | 97.1  | 85.3  | 73.5  | 67.5  | 70.2  | 71.3  | 72.1  | 71.9  |
| 70°   | 516.1  | 277.3 | 111.9 | 84.9  | 75.4  | 66.1  | 61.1  | 62.4  | 61.7  | 62.7  | 63.1  |
| 72.5° | 287.7  | 166.4 | 91.2  | 72.6  | 65.1  | 57.5  | 54.0  | 53.8  | 52.2  | 52.2  | 52.2  |
| 74°   | 172.6  | 122.1 | 80.2  | 65.0  | 58.9  | 51.9  | 48.9  | 47.8  | 46.3  | 46.4  | 46.3  |
| 75°   | 138.8  | 104.9 | 73.6  | 60.0  | 54.5  | 48.6  | 45.5  | 44.1  | 43.0  | 43.0  | 42.9  |
| 77.5° | 87.7   | 79.7  | 59.3  | 47.8  | 43.6  | 40.0  | 38.0  | 36.0  | 36.0  | 35.9  | 35.8  |
| 80°   | 66.2   | 63.4  | 46.2  | 36.1  | 33.4  | 30.7  | 29.4  | 28.5  | 28.5  | 28.9  | 28.8  |
| 82.5° | 45.4   | 47.8  | 32.4  | 25.2  | 23.9  | 21.9  | 21.7  | 21.8  | 21.4  | 20.9  | 20.8  |
| 85°   | 33.2   | 35.9  | 21.9  | 15.9  | 14.6  | 13.3  | 14.3  | 14.8  | 14.2  | 13.1  | 12.6  |
| 87.5° | 12.7   | 23.5  | 11.8  | 6.6   | 6.1   | 5.3   | 6.1   | 6.4   | 6.9   | 5.4   | 5.5   |
| 90°   | 0.0    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |



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



**Test Information**

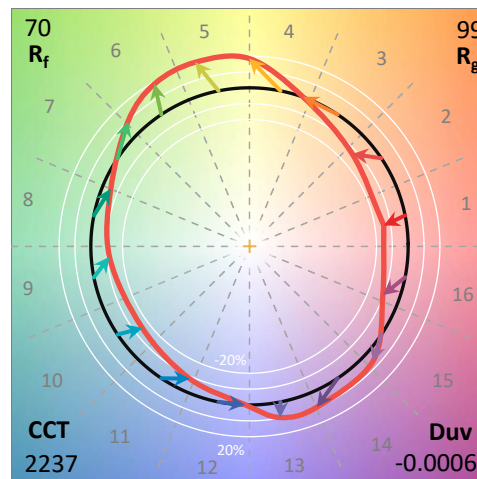
Test Method: LM-79-2008 Report  
 Number: SP1-1908-441-10-R4  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry: 4π  
 Issue Date: 10/28/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: McGRAW-EDISON  
 Catalog Number: **SA1C-722-U-5WQ**  
 Description: McGRAW EDISON ROADWAY AND AREA LUMINAIRE

\*\*\*THIS IS A REVISION OF SP1-1908-441-4-R3. TO UPDATE THE CATALOG INFORMATION.\*\*\*TESTED IN SITU. ROADWAY AND AREA LUMINAIRE. (1) 70 CRI, 5000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

**Spectral Parameters**

CCT (K): 2237  
 CIE u': 0.2876  
 CIE v': 0.5346  
 Duv: -0.0006  
 CIE x: 0.5005  
 CIE y: 0.4134  
 CIE z: 0.0860  
 Peak Wavelength (nm): 603  
 Dominant Wavelength (nm): 587  
 Purity: 74.5  
 R<sub>f</sub>: 69.8  
 R<sub>g</sub>: 99.2

|           |      |      |       |
|-----------|------|------|-------|
| CRI (Ra): | 72.0 |      |       |
| R1:       | 68.9 | R9:  | -17.4 |
| R2:       | 83.0 | R10: | 61.3  |
| R3:       | 95.2 | R11: | 59.8  |
| R4:       | 66.2 | R12: | 50.5  |
| R5:       | 65.9 | R13: | 71.1  |
| R6:       | 76.3 | R14: | 96.9  |
| R7:       | 76.7 |      |       |
| R8:       | 43.8 |      |       |



**Test Conditions**

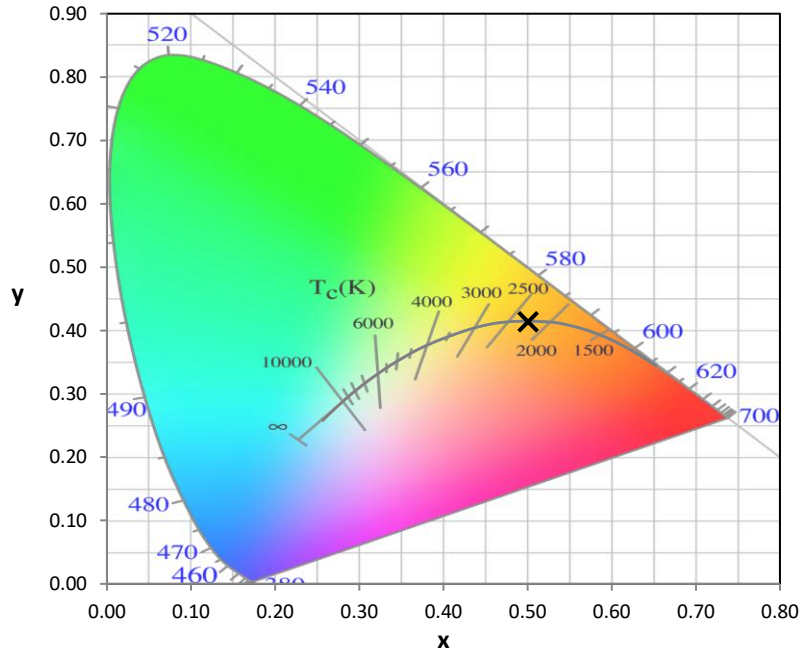
Stabilization Time: 71M  
 Operation Time: 12H  
 Room Temperature (°C) / RH%: 24.7/41%  
 Sphere Temperature (°C): 25.6

REPORT NUMBER: SP1-1908-441-10-R4

| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | IN0058                | 6/28/2019        | 12/28/2019           |
| Power Meter                    | IN0071                | 12/5/2018        | 12/5/2019            |
| AC Power Source                | IN0063                | 12/5/2018        | 12/5/2019            |
| DC Power Source                | IN0208                | 12/5/2018        | 12/5/2019            |
| Sphere Thermometer             | IN0085                | 12/5/2018        | 12/5/2019            |
| Room Thermometer               | IN0046                | 12/5/2018        | 12/5/2019            |

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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 4-step quadrangle

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**Photopic Flux vs. Wavelength**



#####

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360    | 1768          | NR            | 490    | 5206          | NR            | 620    | 130919        | NR            | 750    | 8553          | NR            | 880    | 2713          | NR            |
| 365    | 1569          | NR            | 495    | 7286          | NR            | 625    | 125335        | NR            | 755    | 7696          | NR            | 885    | 2316          | NR            |
| 370    | 1594          | NR            | 500    | 10654         | NR            | 630    | 118388        | NR            | 760    | 6978          | NR            | 890    | 2539          | NR            |
| 375    | 1744          | NR            | 505    | 15189         | NR            | 635    | 111855        | NR            | 765    | 6377          | NR            | 895    | 1933          | NR            |
| 380    | 1659          | NR            | 510    | 20541         | NR            | 640    | 104062        | NR            | 770    | 5600          | NR            | 900    | 2216          | NR            |
| 385    | 1504          | NR            | 515    | 26492         | NR            | 645    | 96365         | NR            | 775    | 5000          | NR            | 905    | 2067          | NR            |
| 390    | 1541          | NR            | 520    | 32294         | NR            | 650    | 88651         | NR            | 780    | 4709          | NR            | 910    | 1959          | NR            |
| 395    | 1355          | NR            | 525    | 38123         | NR            | 655    | 81152         | NR            | 785    | 4305          | NR            | 915    | 1874          | NR            |
| 400    | 1243          | NR            | 530    | 43232         | NR            | 660    | 73523         | NR            | 790    | 4040          | NR            | 920    | 1484          | NR            |
| 405    | 1417          | NR            | 535    | 48012         | NR            | 665    | 66123         | NR            | 795    | 3642          | NR            | 925    | 1914          | NR            |
| 410    | 2147          | NR            | 540    | 52623         | NR            | 670    | 58677         | NR            | 800    | 3594          | NR            | 930    | 1948          | NR            |
| 415    | 3837          | NR            | 545    | 57516         | NR            | 675    | 52349         | NR            | 805    | 3190          | NR            | 935    | 2079          | NR            |
| 420    | 7159          | NR            | 550    | 62613         | NR            | 680    | 46159         | NR            | 810    | 3241          | NR            | 940    | 2263          | NR            |
| 425    | 12599         | NR            | 555    | 68554         | NR            | 685    | 40525         | NR            | 815    | 2732          | NR            | 945    | 1688          | NR            |
| 430    | 19019         | NR            | 560    | 75325         | NR            | 690    | 35615         | NR            | 820    | 2612          | NR            | 950    | 1560          | NR            |
| 435    | 24875         | NR            | 565    | 82533         | NR            | 695    | 31158         | NR            | 825    | 2966          | NR            | 955    | 2826          | NR            |
| 440    | 29103         | NR            | 570    | 90909         | NR            | 700    | 27409         | NR            | 830    | 2574          | NR            | 960    | 1477          | NR            |
| 445    | 29901         | NR            | 575    | 99621         | NR            | 705    | 24204         | NR            | 835    | 2633          | NR            | 965    | 1568          | NR            |
| 450    | 24862         | NR            | 580    | 108484        | NR            | 710    | 21558         | NR            | 840    | 2526          | NR            | 970    | 2030          | NR            |
| 455    | 15942         | NR            | 585    | 116679        | NR            | 715    | 19222         | NR            | 845    | 2631          | NR            | 975    | 1986          | NR            |
| 460    | 9916          | NR            | 590    | 123752        | NR            | 720    | 17310         | NR            | 850    | 2079          | NR            | 980    | 2540          | NR            |
| 465    | 7051          | NR            | 595    | 129324        | NR            | 725    | 15280         | NR            | 855    | 2309          | NR            | 985    | 1139          | NR            |
| 470    | 5227          | NR            | 600    | 134082        | NR            | 730    | 13282         | NR            | 860    | 2528          | NR            | 990    | 2018          | NR            |
| 475    | 4257          | NR            | 605    | 135698        | NR            | 735    | 11753         | NR            | 865    | 2121          | NR            | 995    | 3445          | NR            |
| 480    | 4052          | NR            | 610    | 135144        | NR            | 740    | 10654         | NR            | 870    | 2751          | NR            | 1000   | 3704          | NR            |
| 485    | 4298          | NR            | 615    | 134180        | NR            | 745    | 9451          | NR            | 875    | 2317          | NR            |        |               |               |

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Scotopic Flux vs. Wavelength



Scotopic Lumens: 4696.9

S/P: 0.85

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360    | 1768          | NR            | 490    | 5206          | NR            | 620    | 130919        | NR            | 750    | 8553          | NR            | 880    | 2713          | NR            |
| 365    | 1569          | NR            | 495    | 7286          | NR            | 625    | 125335        | NR            | 755    | 7696          | NR            | 885    | 2316          | NR            |
| 370    | 1594          | NR            | 500    | 10654         | NR            | 630    | 118388        | NR            | 760    | 6978          | NR            | 890    | 2539          | NR            |
| 375    | 1744          | NR            | 505    | 15189         | NR            | 635    | 111855        | NR            | 765    | 6377          | NR            | 895    | 1933          | NR            |
| 380    | 1659          | NR            | 510    | 20541         | NR            | 640    | 104062        | NR            | 770    | 5600          | NR            | 900    | 2216          | NR            |
| 385    | 1504          | NR            | 515    | 26492         | NR            | 645    | 96365         | NR            | 775    | 5000          | NR            | 905    | 2067          | NR            |
| 390    | 1541          | NR            | 520    | 32294         | NR            | 650    | 88651         | NR            | 780    | 4709          | NR            | 910    | 1959          | NR            |
| 395    | 1355          | NR            | 525    | 38123         | NR            | 655    | 81152         | NR            | 785    | 4305          | NR            | 915    | 1874          | NR            |
| 400    | 1243          | NR            | 530    | 43232         | NR            | 660    | 73523         | NR            | 790    | 4040          | NR            | 920    | 1484          | NR            |
| 405    | 1417          | NR            | 535    | 48012         | NR            | 665    | 66123         | NR            | 795    | 3642          | NR            | 925    | 1914          | NR            |
| 410    | 2147          | NR            | 540    | 52623         | NR            | 670    | 58677         | NR            | 800    | 3594          | NR            | 930    | 1948          | NR            |
| 415    | 3837          | NR            | 545    | 57516         | NR            | 675    | 52349         | NR            | 805    | 3190          | NR            | 935    | 2079          | NR            |
| 420    | 7159          | NR            | 550    | 62613         | NR            | 680    | 46159         | NR            | 810    | 3241          | NR            | 940    | 2263          | NR            |
| 425    | 12599         | NR            | 555    | 68554         | NR            | 685    | 40525         | NR            | 815    | 2732          | NR            | 945    | 1688          | NR            |
| 430    | 19019         | NR            | 560    | 75325         | NR            | 690    | 35615         | NR            | 820    | 2612          | NR            | 950    | 1560          | NR            |
| 435    | 24875         | NR            | 565    | 82533         | NR            | 695    | 31158         | NR            | 825    | 2966          | NR            | 955    | 2826          | NR            |
| 440    | 29103         | NR            | 570    | 90909         | NR            | 700    | 27409         | NR            | 830    | 2574          | NR            | 960    | 1477          | NR            |
| 445    | 29901         | NR            | 575    | 99621         | NR            | 705    | 24204         | NR            | 835    | 2633          | NR            | 965    | 1568          | NR            |
| 450    | 24862         | NR            | 580    | 108484        | NR            | 710    | 21558         | NR            | 840    | 2526          | NR            | 970    | 2030          | NR            |
| 455    | 15942         | NR            | 585    | 116679        | NR            | 715    | 19222         | NR            | 845    | 2631          | NR            | 975    | 1986          | NR            |
| 460    | 9916          | NR            | 590    | 123752        | NR            | 720    | 17310         | NR            | 850    | 2079          | NR            | 980    | 2540          | NR            |
| 465    | 7051          | NR            | 595    | 129324        | NR            | 725    | 15280         | NR            | 855    | 2309          | NR            | 985    | 1139          | NR            |
| 470    | 5227          | NR            | 600    | 134082        | NR            | 730    | 13282         | NR            | 860    | 2528          | NR            | 990    | 2018          | NR            |
| 475    | 4257          | NR            | 605    | 135698        | NR            | 735    | 11753         | NR            | 865    | 2121          | NR            | 995    | 3445          | NR            |
| 480    | 4052          | NR            | 610    | 135144        | NR            | 740    | 10654         | NR            | 870    | 2751          | NR            | 1000   | 3704          | NR            |
| 485    | 4298          | NR            | 615    | 134180        | NR            | 745    | 9451          | NR            | 875    | 2317          | NR            |        |               |               |

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**Melanopic Flux vs. Wavelength**



**Melanopic Lumens: 1470.8 M/P: 0.27**

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360    | 1768          | NR            | 490    | 5206          | NR            | 620    | 130919        | NR            | 750    | 8553          | NR            | 880    | 2713          | NR            |
| 365    | 1569          | NR            | 495    | 7286          | NR            | 625    | 125335        | NR            | 755    | 7696          | NR            | 885    | 2316          | NR            |
| 370    | 1594          | NR            | 500    | 10654         | NR            | 630    | 118388        | NR            | 760    | 6978          | NR            | 890    | 2539          | NR            |
| 375    | 1744          | NR            | 505    | 15189         | NR            | 635    | 111855        | NR            | 765    | 6377          | NR            | 895    | 1933          | NR            |
| 380    | 1659          | NR            | 510    | 20541         | NR            | 640    | 104062        | NR            | 770    | 5600          | NR            | 900    | 2216          | NR            |
| 385    | 1504          | NR            | 515    | 26492         | NR            | 645    | 96365         | NR            | 775    | 5000          | NR            | 905    | 2067          | NR            |
| 390    | 1541          | NR            | 520    | 32294         | NR            | 650    | 88651         | NR            | 780    | 4709          | NR            | 910    | 1959          | NR            |
| 395    | 1355          | NR            | 525    | 38123         | NR            | 655    | 81152         | NR            | 785    | 4305          | NR            | 915    | 1874          | NR            |
| 400    | 1243          | NR            | 530    | 43232         | NR            | 660    | 73523         | NR            | 790    | 4040          | NR            | 920    | 1484          | NR            |
| 405    | 1417          | NR            | 535    | 48012         | NR            | 665    | 66123         | NR            | 795    | 3642          | NR            | 925    | 1914          | NR            |
| 410    | 2147          | NR            | 540    | 52623         | NR            | 670    | 58677         | NR            | 800    | 3594          | NR            | 930    | 1948          | NR            |
| 415    | 3837          | NR            | 545    | 57516         | NR            | 675    | 52349         | NR            | 805    | 3190          | NR            | 935    | 2079          | NR            |
| 420    | 7159          | NR            | 550    | 62613         | NR            | 680    | 46159         | NR            | 810    | 3241          | NR            | 940    | 2263          | NR            |
| 425    | 12599         | NR            | 555    | 68554         | NR            | 685    | 40525         | NR            | 815    | 2732          | NR            | 945    | 1688          | NR            |
| 430    | 19019         | NR            | 560    | 75325         | NR            | 690    | 35615         | NR            | 820    | 2612          | NR            | 950    | 1560          | NR            |
| 435    | 24875         | NR            | 565    | 82533         | NR            | 695    | 31158         | NR            | 825    | 2966          | NR            | 955    | 2826          | NR            |
| 440    | 29103         | NR            | 570    | 90909         | NR            | 700    | 27409         | NR            | 830    | 2574          | NR            | 960    | 1477          | NR            |
| 445    | 29901         | NR            | 575    | 99621         | NR            | 705    | 24204         | NR            | 835    | 2633          | NR            | 965    | 1568          | NR            |
| 450    | 24862         | NR            | 580    | 108484        | NR            | 710    | 21558         | NR            | 840    | 2526          | NR            | 970    | 2030          | NR            |
| 455    | 15942         | NR            | 585    | 116679        | NR            | 715    | 19222         | NR            | 845    | 2631          | NR            | 975    | 1986          | NR            |
| 460    | 9916          | NR            | 590    | 123752        | NR            | 720    | 17310         | NR            | 850    | 2079          | NR            | 980    | 2540          | NR            |
| 465    | 7051          | NR            | 595    | 129324        | NR            | 725    | 15280         | NR            | 855    | 2309          | NR            | 985    | 1139          | NR            |
| 470    | 5227          | NR            | 600    | 134082        | NR            | 730    | 13282         | NR            | 860    | 2528          | NR            | 990    | 2018          | NR            |
| 475    | 4257          | NR            | 605    | 135698        | NR            | 735    | 11753         | NR            | 865    | 2121          | NR            | 995    | 3445          | NR            |
| 480    | 4052          | NR            | 610    | 135144        | NR            | 740    | 10654         | NR            | 870    | 2751          | NR            | 1000   | 3704          | NR            |
| 485    | 4298          | NR            | 615    | 134180        | NR            | 745    | 9451          | NR            | 875    | 2317          | NR            |        |               |               |

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**Summary**

$R_f = 69.8$   
 $R_g = 99.2$   
 $CIE R_a = 72.0$   
 $R_9 = -17.4$



**Color Vector Graphics**





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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 87 | CES26 = 56 | CES51 = 74 | CES76 = 56 |
| CES02 = 65 | CES27 = 76 | CES52 = 76 | CES77 = 81 |
| CES03 = 32 | CES28 = 83 | CES53 = 65 | CES78 = 63 |
| CES04 = 72 | CES29 = 46 | CES54 = 78 | CES79 = 84 |
| CES05 = 52 | CES30 = 48 | CES55 = 75 | CES80 = 84 |
| CES06 = 52 | CES31 = 51 | CES56 = 65 | CES81 = 63 |
| CES07 = 44 | CES32 = 51 | CES57 = 62 | CES82 = 92 |
| CES08 = 42 | CES33 = 53 | CES58 = 66 | CES83 = 83 |
| CES09 = 29 | CES34 = 70 | CES59 = 84 | CES84 = 92 |
| CES10 = 78 | CES35 = 85 | CES60 = 90 | CES85 = 81 |
| CES11 = 61 | CES36 = 78 | CES61 = 84 | CES86 = 56 |
| CES12 = 68 | CES37 = 80 | CES62 = 70 | CES87 = 78 |
| CES13 = 45 | CES38 = 53 | CES63 = 68 | CES88 = 72 |
| CES14 = 75 | CES39 = 90 | CES64 = 69 | CES89 = 62 |
| CES15 = 72 | CES40 = 84 | CES65 = 67 | CES90 = 67 |
| CES16 = 49 | CES41 = 75 | CES66 = 64 | CES91 = 90 |
| CES17 = 51 | CES42 = 79 | CES67 = 63 | CES92 = 67 |
| CES18 = 57 | CES43 = 64 | CES68 = 69 | CES93 = 79 |
| CES19 = 74 | CES44 = 98 | CES69 = 80 | CES94 = 52 |
| CES20 = 68 | CES45 = 73 | CES70 = 63 | CES95 = 76 |
| CES21 = 89 | CES46 = 67 | CES71 = 63 | CES96 = 78 |
| CES22 = 81 | CES47 = 60 | CES72 = 87 | CES97 = 77 |
| CES23 = 92 | CES48 = 48 | CES73 = 56 | CES98 = 71 |
| CES24 = 92 | CES49 = 64 | CES74 = 87 | CES99 = 65 |
| CES25 = 74 | CES50 = 74 | CES75 = 66 |            |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)