

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: P438181

Luminaire Tested: **ISW-SA1B-735-U-SL3-HSS**

Issue Date: 12/10/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P438181  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2011-074-17)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/10/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: McGRAW-EDISON  
Catalog Number: ISW-SA1B-735-U-SL3-HSS  
Description: IMPACT ELITE LED WEDGE LUMINAIRE  
(1) 70 CRI, 3500K, 450mA LIGHTSQUARE WITH 16 LEDS AND TYPE III SPILL  
LIGHT ELIMINATOR OPTICS WITH HOUSE SIDE SHIELD  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2670.9 lumens  
Efficiency: N/A  
Efficacy: 105.2 lumens/watt  
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B0 - U0 - G1

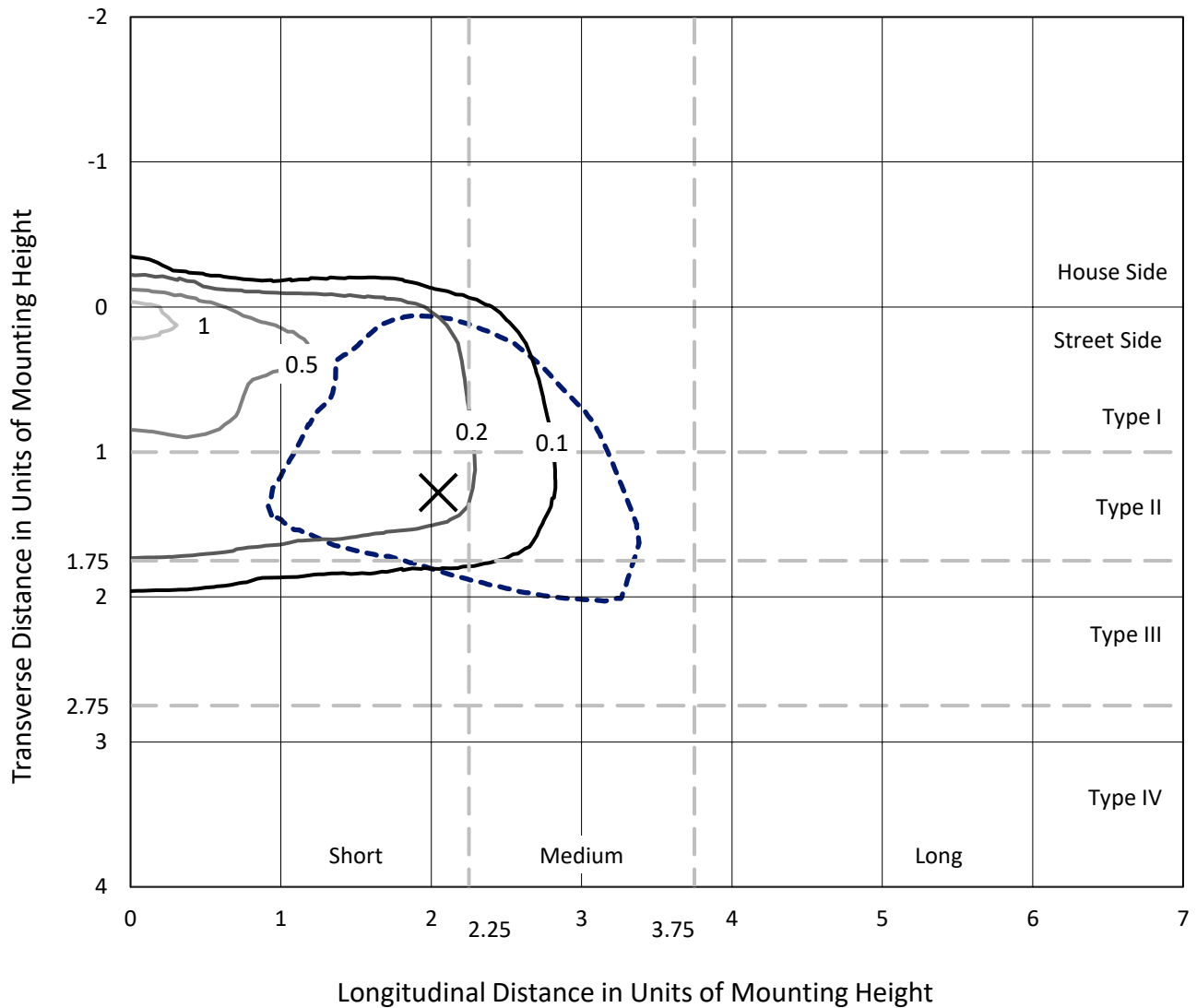
Input Watts (W): 25.4  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT



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### Iso-Footcandle Lines of Horizontal Illumination

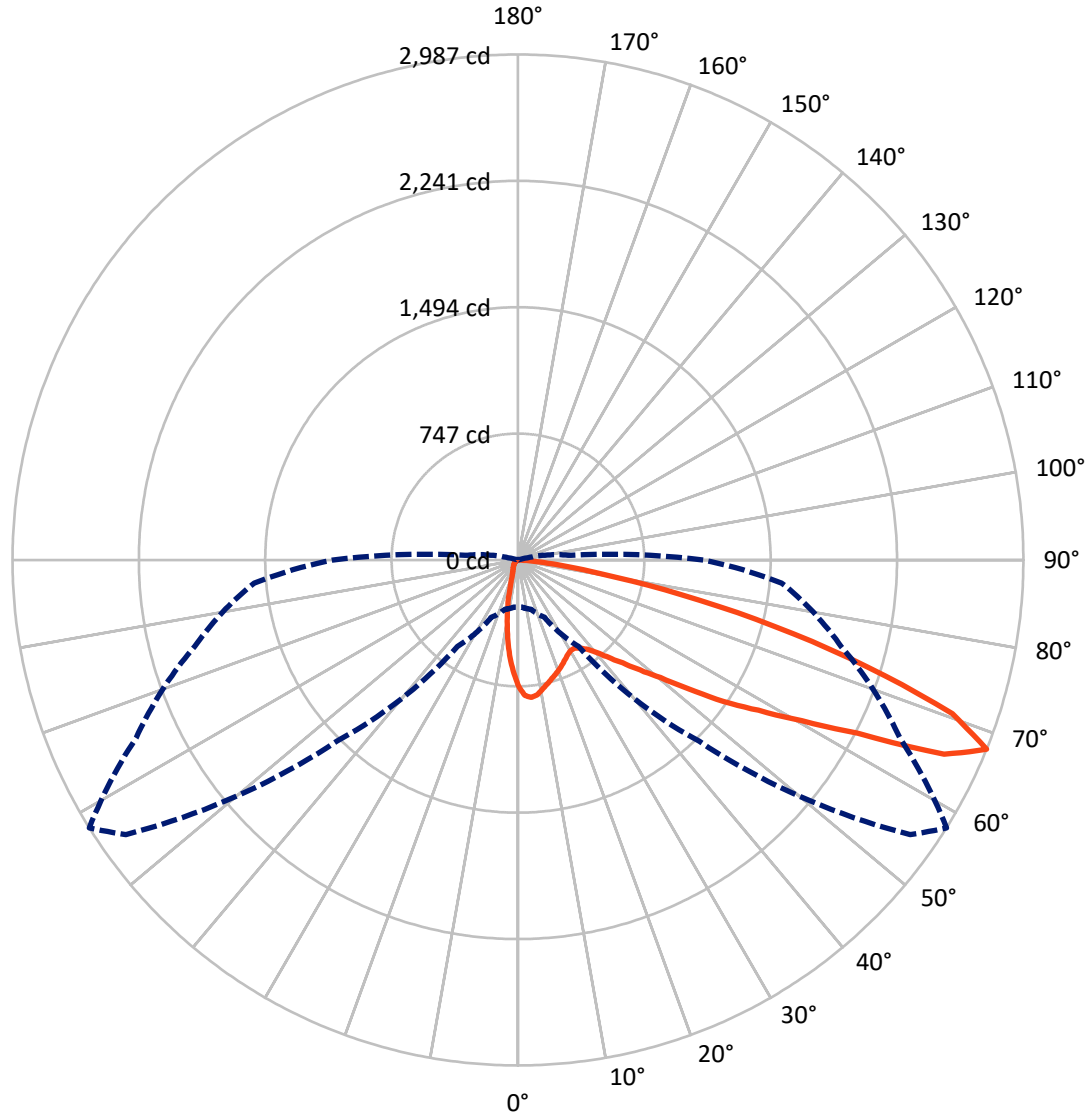
× Max cd  
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 1.2 fc  
 Type III - Short - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 58-Deg Lateral    - - - Horizontal Cone Through 67.5-Deg Vertical

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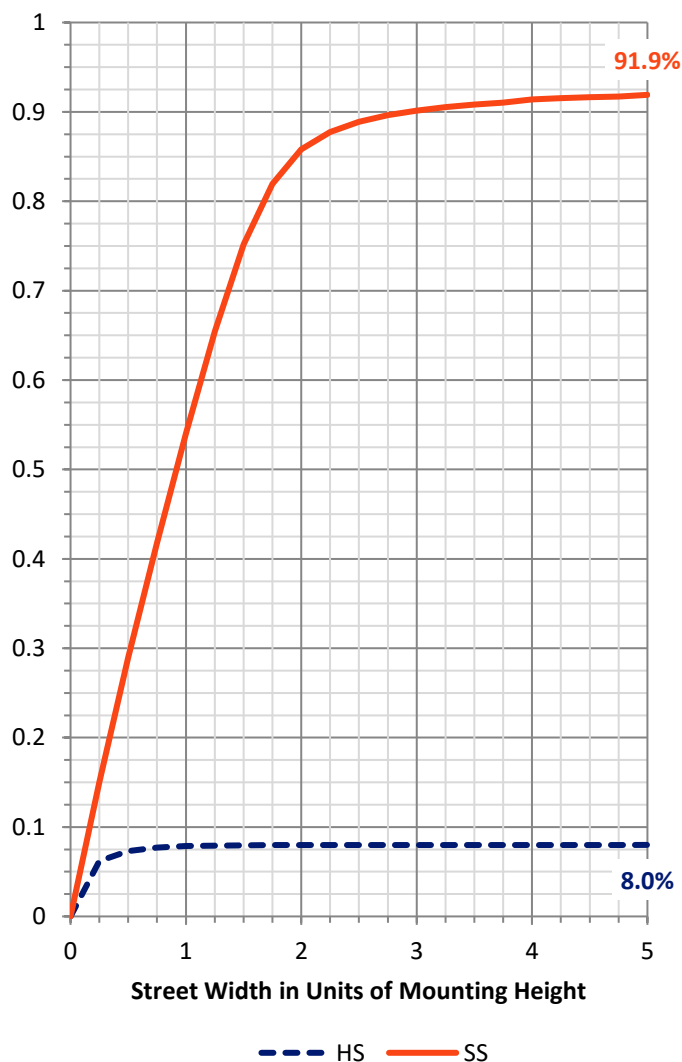
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 215.3    | 0.0    | 215.3  |
|                    | % Fixture | 8.1      | 0.0    | 8.1    |
| <b>Street Side</b> | Lumens    | 2455.6   | 0.0    | 2455.6 |
|                    | % Fixture | 91.9     | 0.0    | 91.9   |
| <b>Total</b>       | Lumens    | 2670.9   | 0.0    | 2670.9 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 60.2   | 2.3       |
| 10°-20°   | 126.9  | 4.8       |
| 20°-30°   | 171.7  | 6.4       |
| 30°-40°   | 236.1  | 8.8       |
| 40°-50°   | 369.7  | 13.8      |
| 50°-60°   | 622.8  | 23.3      |
| 60°-70°   | 739.1  | 27.7      |
| 70°-80°   | 320.9  | 12.0      |
| 80°-90°   | 23.6   | 0.9       |
| 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°    | 2670.9 | 100.0     |
| 0°-180°   | 2670.9 | 100.0     |

**Coefficient of Utilization**



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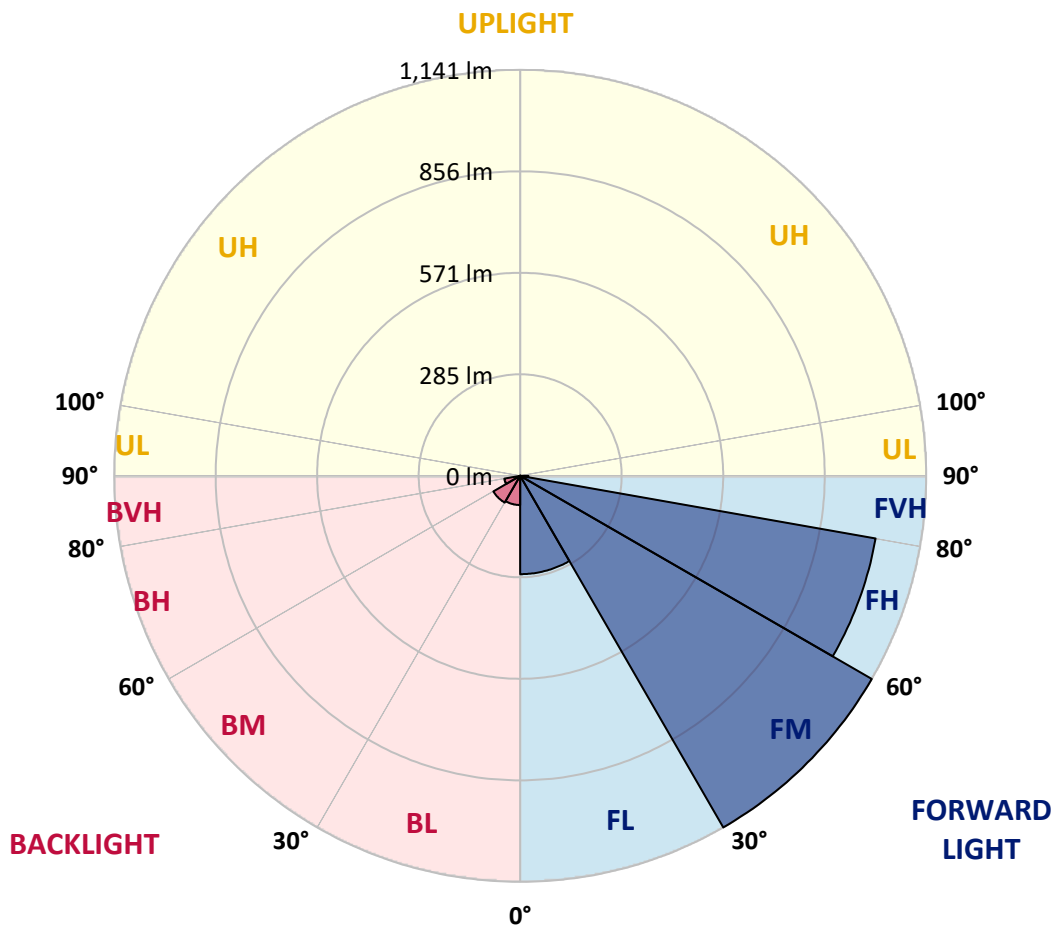
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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone           | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|----------------|--------|-----------|-------------------------|------|---------|
|                |        |           | B                       | U    | G       |
| FL (0°-30°)    | 276.6  | 10.4      |                         |      |         |
| FM (30°-60°)   | 1141.5 | 42.7      |                         |      |         |
| FH (60°-80°)   | 1014.7 | 38.0      |                         |      | G1/1800 |
| FVH (80°-90°)  | 22.9   | 0.9       |                         |      | G1/100  |
| BL (0°-30°)    | 82.2   | 3.1       | B0/110                  |      |         |
| BM (30°-60°)   | 87.1   | 3.3       | B0/220                  |      |         |
| BH (60°-80°)   | 45.3   | 1.7       | B0/110                  |      | G0/110  |
| BVH (80°-90°)  | 0.7    | 0.0       |                         |      | G0/10   |
| UL (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B0-U0-G1**

Type III Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 58°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 752.0  | 752.0  | 752.0  | 752.0  | 752.0  | 752.0  | 752.0  | 752.0  | 752.0  | 752.0  | 752.0  |
| 2.5°  | 839.4  | 834.8  | 832.5  | 831.4  | 823.3  | 816.4  | 802.6  | 801.5  | 792.3  | 775.0  | 757.8  |
| 5°    | 821.0  | 824.5  | 825.6  | 829.1  | 827.9  | 827.9  | 818.7  | 816.4  | 803.8  | 779.6  | 746.3  |
| 7.5°  | 780.8  | 779.6  | 781.9  | 791.1  | 795.7  | 804.9  | 803.8  | 806.1  | 800.3  | 773.9  | 726.7  |
| 10°   | 722.1  | 724.4  | 731.3  | 739.4  | 752.0  | 768.1  | 778.5  | 780.8  | 785.4  | 763.5  | 708.3  |
| 12.5° | 668.1  | 671.5  | 676.1  | 692.2  | 706.0  | 731.3  | 750.9  | 755.5  | 764.7  | 753.2  | 692.2  |
| 15°   | 623.2  | 624.4  | 627.8  | 642.8  | 665.8  | 698.0  | 726.7  | 733.6  | 748.6  | 744.0  | 679.6  |
| 17.5° | 587.6  | 588.7  | 593.3  | 606.0  | 624.4  | 662.3  | 701.4  | 712.9  | 734.8  | 738.2  | 665.8  |
| 20°   | 568.0  | 568.0  | 568.0  | 576.1  | 594.5  | 630.1  | 676.1  | 692.2  | 723.3  | 729.0  | 654.3  |
| 22.5° | 562.3  | 562.3  | 560.0  | 562.3  | 573.8  | 603.7  | 650.8  | 670.4  | 709.5  | 725.6  | 640.5  |
| 25°   | 570.3  | 566.9  | 566.9  | 561.1  | 562.3  | 581.8  | 627.8  | 649.7  | 701.4  | 723.3  | 633.6  |
| 27.5° | 585.3  | 584.1  | 579.5  | 574.9  | 568.0  | 572.6  | 608.3  | 630.1  | 693.4  | 726.7  | 627.8  |
| 30°   | 602.5  | 602.5  | 600.2  | 597.9  | 586.4  | 577.2  | 599.1  | 618.6  | 689.9  | 732.5  | 624.4  |
| 32.5° | 622.1  | 620.9  | 626.7  | 629.0  | 615.2  | 597.9  | 601.4  | 619.8  | 692.2  | 749.7  | 626.7  |
| 35°   | 645.1  | 645.1  | 655.4  | 669.2  | 657.7  | 631.3  | 623.2  | 639.3  | 703.7  | 768.1  | 635.9  |
| 37.5° | 670.4  | 671.5  | 689.9  | 709.5  | 701.4  | 678.4  | 664.6  | 670.4  | 727.9  | 802.6  | 656.6  |
| 40°   | 700.3  | 700.3  | 727.9  | 760.1  | 760.1  | 733.6  | 715.2  | 719.8  | 762.4  | 852.1  | 693.4  |
| 42.5° | 732.5  | 735.9  | 775.0  | 814.1  | 825.6  | 801.5  | 781.9  | 787.7  | 817.6  | 916.4  | 747.4  |
| 45°   | 778.5  | 788.8  | 839.4  | 877.4  | 900.4  | 888.9  | 863.6  | 868.2  | 890.0  | 1009.6 | 829.1  |
| 47.5° | 860.1  | 869.3  | 913.0  | 950.9  | 979.7  | 985.4  | 973.9  | 971.6  | 980.8  | 1118.8 | 932.5  |
| 50°   | 957.8  | 965.9  | 995.8  | 1028.0 | 1068.2 | 1102.7 | 1095.8 | 1092.4 | 1095.8 | 1238.4 | 1059.0 |
| 52.5° | 1054.4 | 1051.0 | 1086.6 | 1103.9 | 1160.2 | 1236.1 | 1266.0 | 1266.0 | 1247.6 | 1363.8 | 1183.2 |
| 55°   | 1140.7 | 1155.6 | 1193.6 | 1224.6 | 1271.8 | 1362.6 | 1463.8 | 1476.4 | 1413.2 | 1487.9 | 1286.7 |
| 57.5° | 1130.3 | 1145.3 | 1215.4 | 1313.2 | 1452.3 | 1575.3 | 1674.2 | 1676.5 | 1584.5 | 1583.4 | 1414.3 |
| 60°   | 1009.6 | 1010.7 | 1105.0 | 1253.4 | 1531.6 | 1882.3 | 1939.8 | 1928.3 | 1734.0 | 1716.8 | 1590.3 |
| 62.5° | 710.6  | 706.0  | 827.9  | 1016.5 | 1413.2 | 2050.2 | 2342.3 | 2254.9 | 1982.4 | 1926.0 | 1754.7 |
| 65°   | 414.0  | 411.7  | 458.8  | 607.1  | 1070.5 | 1931.8 | 2753.9 | 2767.7 | 2308.9 | 2033.0 | 1720.2 |
| 67.5° | 278.3  | 280.6  | 302.4  | 374.9  | 624.4  | 1515.5 | 2829.8 | 2987.4 | 2490.6 | 1977.8 | 1565.0 |
| 70°   | 204.7  | 204.7  | 221.9  | 276.0  | 370.3  | 949.8  | 2472.2 | 2724.1 | 2526.3 | 1839.8 | 1309.7 |
| 72.5° | 146.0  | 146.0  | 170.2  | 223.1  | 302.4  | 489.8  | 1837.5 | 2159.5 | 2133.0 | 1527.0 | 906.1  |
| 75°   | 93.1   | 95.4   | 121.9  | 182.8  | 276.0  | 313.9  | 1246.5 | 1565.0 | 1487.9 | 854.4  | 386.4  |
| 77.5° | 35.6   | 40.2   | 65.5   | 134.5  | 241.5  | 261.0  | 710.6  | 986.6  | 785.4  | 299.0  | 103.5  |
| 80°   | 12.6   | 12.6   | 21.8   | 69.0   | 170.2  | 215.0  | 371.4  | 489.8  | 255.3  | 72.4   | 39.1   |
| 82.5° | 2.3    | 2.3    | 8.0    | 28.7   | 83.9   | 149.5  | 216.2  | 241.5  | 100.0  | 24.1   | 23.0   |
| 85°   | 0.0    | 0.0    | 1.1    | 5.7    | 19.5   | 14.9   | 86.2   | 81.6   | 31.0   | 10.3   | 14.9   |
| 87.5° | 0.0    | 0.0    | 0.0    | 0.0    | 1.1    | 1.1    | 2.3    | 2.3    | 2.3    | 2.3    | 2.3    |
| 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: ISW-SA1B-735-U-SL3-HSS

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 752.0  | 752.0 | 752.0 | 752.0 | 752.0 | 752.0 | 752.0 | 752.0 | 752.0 | 752.0 | 752.0 |
| 2.5°  | 744.0  | 734.8 | 708.3 | 689.9 | 664.6 | 639.3 | 623.2 | 610.6 | 604.8 | 596.8 | 600.2 |
| 5°    | 725.6  | 704.9 | 656.6 | 612.9 | 571.5 | 527.8 | 495.6 | 466.8 | 457.6 | 441.6 | 439.3 |
| 7.5°  | 698.0  | 669.2 | 597.9 | 528.9 | 462.2 | 407.1 | 357.6 | 319.7 | 285.2 | 270.2 | 279.4 |
| 10°   | 671.5  | 632.4 | 539.3 | 447.3 | 358.8 | 281.7 | 223.1 | 177.1 | 150.6 | 139.1 | 141.4 |
| 12.5° | 646.2  | 596.8 | 478.3 | 369.1 | 261.0 | 173.6 | 126.5 | 102.3 | 94.3  | 93.1  | 90.8  |
| 15°   | 624.4  | 563.4 | 424.3 | 286.3 | 173.6 | 109.2 | 89.7  | 83.9  | 82.8  | 82.8  | 82.8  |
| 17.5° | 600.2  | 528.9 | 365.7 | 210.4 | 113.8 | 85.1  | 79.3  | 78.2  | 77.0  | 77.0  | 77.0  |
| 20°   | 581.8  | 499.0 | 311.6 | 147.2 | 87.4  | 75.9  | 73.6  | 73.6  | 72.4  | 72.4  | 72.4  |
| 22.5° | 562.3  | 468.0 | 258.7 | 108.1 | 74.7  | 70.1  | 67.8  | 66.7  | 66.7  | 65.5  | 65.5  |
| 25°   | 543.9  | 439.3 | 208.1 | 82.8  | 66.7  | 63.2  | 60.9  | 59.8  | 59.8  | 58.6  | 57.5  |
| 27.5° | 532.4  | 416.3 | 163.3 | 70.1  | 59.8  | 57.5  | 55.2  | 52.9  | 50.6  | 49.4  | 49.4  |
| 30°   | 524.3  | 388.7 | 124.2 | 60.9  | 55.2  | 51.7  | 48.3  | 44.8  | 41.4  | 40.2  | 40.2  |
| 32.5° | 512.8  | 366.8 | 95.4  | 55.2  | 49.4  | 46.0  | 41.4  | 37.9  | 34.5  | 32.2  | 32.2  |
| 35°   | 512.8  | 348.4 | 73.6  | 49.4  | 44.8  | 40.2  | 36.8  | 31.0  | 27.6  | 26.4  | 25.3  |
| 37.5° | 520.9  | 327.7 | 60.9  | 46.0  | 41.4  | 36.8  | 32.2  | 26.4  | 23.0  | 21.8  | 21.8  |
| 40°   | 539.3  | 320.8 | 51.7  | 41.4  | 36.8  | 32.2  | 27.6  | 21.8  | 19.5  | 17.2  | 17.2  |
| 42.5° | 577.2  | 323.1 | 46.0  | 39.1  | 33.3  | 28.7  | 23.0  | 18.4  | 16.1  | 14.9  | 14.9  |
| 45°   | 632.4  | 330.0 | 42.5  | 35.6  | 29.9  | 24.1  | 19.5  | 16.1  | 12.6  | 11.5  | 11.5  |
| 47.5° | 709.5  | 351.9 | 37.9  | 32.2  | 26.4  | 20.7  | 16.1  | 12.6  | 10.3  | 9.2   | 9.2   |
| 50°   | 801.5  | 389.8 | 35.6  | 28.7  | 24.1  | 17.2  | 12.6  | 9.2   | 6.9   | 6.9   | 6.9   |
| 52.5° | 909.6  | 427.8 | 32.2  | 26.4  | 20.7  | 14.9  | 10.3  | 6.9   | 5.7   | 4.6   | 4.6   |
| 55°   | 1000.4 | 461.1 | 28.7  | 24.1  | 17.2  | 11.5  | 8.0   | 5.7   | 4.6   | 3.4   | 3.4   |
| 57.5° | 1118.8 | 509.4 | 24.1  | 20.7  | 13.8  | 9.2   | 5.7   | 4.6   | 2.3   | 2.3   | 2.3   |
| 60°   | 1277.5 | 566.9 | 20.7  | 17.2  | 10.3  | 6.9   | 4.6   | 2.3   | 2.3   | 1.1   | 1.1   |
| 62.5° | 1345.4 | 520.9 | 18.4  | 13.8  | 8.0   | 4.6   | 3.4   | 2.3   | 1.1   | 1.1   | 1.1   |
| 65°   | 1270.6 | 425.5 | 14.9  | 10.3  | 5.7   | 3.4   | 2.3   | 1.1   | 1.1   | 0.0   | 0.0   |
| 67.5° | 1095.8 | 313.9 | 12.6  | 6.9   | 4.6   | 2.3   | 1.1   | 0.0   | 0.0   | 0.0   | 0.0   |
| 70°   | 893.5  | 232.3 | 9.2   | 4.6   | 2.3   | 2.3   | 1.1   | 0.0   | 0.0   | 0.0   | 0.0   |
| 72.5° | 618.6  | 140.3 | 6.9   | 3.4   | 2.3   | 1.1   | 1.1   | 0.0   | 0.0   | 0.0   | 0.0   |
| 75°   | 240.3  | 55.2  | 5.7   | 3.4   | 2.3   | 1.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 77.5° | 67.8   | 19.5  | 4.6   | 2.3   | 2.3   | 1.1   | 1.1   | 1.1   | 0.0   | 0.0   | 0.0   |
| 80°   | 27.6   | 10.3  | 3.4   | 2.3   | 2.3   | 2.3   | 1.1   | 1.1   | 0.0   | 0.0   | 0.0   |
| 82.5° | 17.2   | 5.7   | 2.3   | 1.1   | 1.1   | 1.1   | 1.1   | 0.0   | 0.0   | 0.0   | 0.0   |
| 85°   | 11.5   | 3.4   | 2.3   | 1.1   | 1.1   | 0.0   | 0.0   | 0.0   | 0.0   | 1.1   | 1.1   |
| 87.5° | 2.3    | 2.3   | 1.1   | 1.1   | 1.1   | 1.1   | 0.0   | 0.0   | 0.0   | 0.0   | 1.1   |
| 90°   | 0.0    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |



LM-79-08: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

All Brands

Data applicable to all product families using SA light engines

Report Number: SP1-2101-121-7

Luminaire Tested: IFLD-S-SA2A-735-U-T2

Test Date: 03/04/2021

**Test Information**

Test Method: LM-79-08  
 Report Number: SP1-2101-121-7  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1  
 Measurement Geometry: 4π  
 Issue Date: 03/04/2021  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: STREETWORKS  
 Catalog Number: **IFLD-S-SA2A-735-U-T2**  
 Description: STREETWORKS INF FLOOD

PROGRAMMED @ 615mA.

**Spectral Parameters**

CCT (K): 3388  
 CIE u': 0.2371  
 CIE v': 0.5177  
 Duv: 0.0032  
 CIE x: 0.4153  
 CIE y: 0.4030  
 CIE z: 0.1817  
 Peak Wavelength (nm): 590  
 Dominant Wavelength (nm): 580  
 Purity: 45.7  
  
 Rf: 76.9  
 Rg: 94.4

|           |      |      |       |
|-----------|------|------|-------|
| CRI (Ra): | 73.1 |      |       |
| R1:       | 68.9 | R9:  | -34.6 |
| R2:       | 81.1 | R10: | 57.8  |
| R3:       | 93.1 | R11: | 68.6  |
| R4:       | 71.6 | R12: | 53.9  |
| R5:       | 69.4 | R13: | 70.9  |
| R6:       | 75.0 | R14: | 96.2  |
| R7:       | 79.5 |      |       |
| R8:       | 46.4 |      |       |

**Test Conditions**

Stabilization Time: 81M  
 Operation Time: 12H  
 Room Temperature (°C) / RH%: 25.0/30%  
 Sphere Temperature (°C): 24.1



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| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | IN0058                | 1/31/2021        | 7/31/2021            |
| Power Meter                    | IN0071                | 12/1/2020        | 12/1/2021            |
| AC Power Source                | IN0063                | 12/1/2020        | 12/1/2021            |
| DC Power Source                | IN0208                | 12/1/2020        | 12/1/2021            |
| Sphere Thermometer             | IN0085                | 12/1/2020        | 12/1/2021            |
| Room Thermometer               | IN0046                | 12/1/2020        | 12/1/2021            |

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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 3500K 4-step quadrangle

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**Photopic Flux vs. Wavelength**



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| 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    | 2672          | 0.0           | 490    | 34553         | 4.9           | 620    | 136720        | 35.6          | 750    | 5870          | 0.0           | 880    | 4216          | 0.0           |
| 365    | 2252          | 0.0           | 495    | 44336         | 8.0           | 625    | 126308        | 27.9          | 755    | 5421          | 0.0           | 885    | 4132          | 0.0           |
| 370    | 2217          | 0.0           | 500    | 54643         | 12.1          | 630    | 114625        | 20.7          | 760    | 5097          | 0.0           | 890    | 3992          | 0.0           |
| 375    | 2697          | 0.0           | 505    | 64676         | 18.1          | 635    | 103216        | 15.5          | 765    | 4626          | 0.0           | 895    | 3214          | 0.0           |
| 380    | 3039          | 0.0           | 510    | 73825         | 25.4          | 640    | 92605         | 11.1          | 770    | 3782          | 0.0           | 900    | 2580          | 0.0           |
| 385    | 2655          | 0.0           | 515    | 81872         | 33.9          | 645    | 83234         | 8.0           | 775    | 3506          | 0.0           | 905    | 1776          | 0.0           |
| 390    | 2357          | 0.0           | 520    | 88574         | 43.0          | 650    | 73263         | 5.4           | 780    | 3507          | 0.0           | 910    | 3995          | 0.0           |
| 395    | 2186          | 0.0           | 525    | 93289         | 50.1          | 655    | 64627         | 3.7           | 785    | 3267          | 0.0           | 915    | 4288          | 0.0           |
| 400    | 2015          | 0.0           | 530    | 98393         | 57.9          | 660    | 56614         | 2.4           | 790    | 2849          | 0.0           | 920    | 2446          | 0.0           |
| 405    | 2234          | 0.0           | 535    | 103269        | 64.0          | 665    | 49537         | 1.6           | 795    | 3037          | 0.0           | 925    | 3009          | 0.0           |
| 410    | 3412          | 0.0           | 540    | 107316        | 69.9          | 670    | 42866         | 0.9           | 800    | 2716          | 0.0           | 930    | 3026          | 0.0           |
| 415    | 6135          | 0.0           | 545    | 113101        | 75.3          | 675    | 36708         | 0.6           | 805    | 2648          | 0.0           | 935    | 4734          | 0.0           |
| 420    | 12146         | 0.0           | 550    | 120690        | 82.0          | 680    | 31814         | 0.4           | 810    | 3187          | 0.0           | 940    | 3719          | 0.0           |
| 425    | 23983         | 0.1           | 555    | 128583        | 87.8          | 685    | 27485         | 0.2           | 815    | 2931          | 0.0           | 945    | 1480          | 0.0           |
| 430    | 42142         | 0.3           | 560    | 137796        | 93.6          | 690    | 23698         | 0.1           | 820    | 2717          | 0.0           | 950    | 3450          | 0.0           |
| 435    | 68228         | 0.8           | 565    | 146577        | 97.5          | 695    | 20309         | 0.1           | 825    | 2236          | 0.0           | 955    | 5051          | 0.0           |
| 440    | 99323         | 1.6           | 570    | 154581        | 100.5         | 700    | 17890         | 0.1           | 830    | 2628          | 0.0           | 960    | 3176          | 0.0           |
| 445    | 115584        | 2.4           | 575    | 162633        | 101.2         | 705    | 15500         | 0.0           | 835    | 3140          | 0.0           | 965    | 5178          | 0.0           |
| 450    | 94997         | 2.5           | 580    | 168101        | 99.9          | 710    | 13699         | 0.0           | 840    | 3675          | 0.0           | 970    | 6385          | 0.0           |
| 455    | 61433         | 2.1           | 585    | 173145        | 96.2          | 715    | 12398         | 0.0           | 845    | 3283          | 0.0           | 975    | 3810          | 0.0           |
| 460    | 43373         | 1.8           | 590    | 174675        | 90.3          | 720    | 11147         | 0.0           | 850    | 3055          | 0.0           | 980    | 4322          | 0.0           |
| 465    | 32472         | 1.7           | 595    | 173724        | 82.3          | 725    | 9761          | 0.0           | 855    | 2932          | 0.0           | 985    | 4200          | 0.0           |
| 470    | 24257         | 1.5           | 600    | 171241        | 73.8          | 730    | 8651          | 0.0           | 860    | 3382          | 0.0           | 990    | 4661          | 0.0           |
| 475    | 21690         | 1.7           | 605    | 165134        | 64.0          | 735    | 7730          | 0.0           | 865    | 2605          | 0.0           | 995    | 6746          | 0.0           |
| 480    | 23173         | 2.2           | 610    | 156652        | 53.8          | 740    | 6847          | 0.0           | 870    | 3325          | 0.0           | 1000   | 4150          | 0.0           |
| 485    | 27564         | 3.3           | 615    | 147879        | 44.6          | 745    | 6124          | 0.0           | 875    | 3325          | 0.0           |        |               |               |

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**Scotopic Flux vs. Wavelength**



**Scotopic Lumens: 12126**

**S/P: 1.36**

| 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    | 2672          | 0.0           | 490    | 34553         | 53.2          | 620    | 136720        | 1.7           | 750    | 5870          | 0.0           | 880    | 4216          | 0.0           |
| 365    | 2252          | 0.0           | 495    | 44336         | 71.7          | 625    | 126308        | 1.1           | 755    | 5421          | 0.0           | 885    | 4132          | 0.0           |
| 370    | 2217          | 0.0           | 500    | 54643         | 91.4          | 630    | 114625        | 0.6           | 760    | 5097          | 0.0           | 890    | 3992          | 0.0           |
| 375    | 2697          | 0.0           | 505    | 64676         | 110.0         | 635    | 103216        | 0.4           | 765    | 4626          | 0.0           | 895    | 3214          | 0.0           |
| 380    | 3039          | 0.0           | 510    | 73825         | 125.1         | 640    | 92605         | 0.2           | 770    | 3782          | 0.0           | 900    | 2580          | 0.0           |
| 385    | 2655          | 0.0           | 515    | 81872         | 135.7         | 645    | 83234         | 0.1           | 775    | 3506          | 0.0           | 905    | 1776          | 0.0           |
| 390    | 2357          | 0.0           | 520    | 88574         | 140.8         | 650    | 73263         | 0.1           | 780    | 3507          | 0.0           | 910    | 3995          | 0.0           |
| 395    | 2186          | 0.0           | 525    | 93289         | 139.6         | 655    | 64627         | 0.1           | 785    | 3267          | 0.0           | 915    | 4288          | 0.0           |
| 400    | 2015          | 0.0           | 530    | 98393         | 135.7         | 660    | 56614         | 0.0           | 790    | 2849          | 0.0           | 920    | 2446          | 0.0           |
| 405    | 2234          | 0.1           | 535    | 103269        | 128.7         | 665    | 49537         | 0.0           | 795    | 3037          | 0.0           | 925    | 3009          | 0.0           |
| 410    | 3412          | 0.2           | 540    | 107316        | 118.6         | 670    | 42866         | 0.0           | 800    | 2716          | 0.0           | 930    | 3026          | 0.0           |
| 415    | 6135          | 0.6           | 545    | 113101        | 108.4         | 675    | 36708         | 0.0           | 805    | 2648          | 0.0           | 935    | 4734          | 0.0           |
| 420    | 12146         | 2.0           | 550    | 120690        | 98.7          | 680    | 31814         | 0.0           | 810    | 3187          | 0.0           | 940    | 3719          | 0.0           |
| 425    | 23983         | 5.9           | 555    | 128583        | 87.9          | 685    | 27485         | 0.0           | 815    | 2931          | 0.0           | 945    | 1480          | 0.0           |
| 430    | 42142         | 14.3          | 560    | 137796        | 77.0          | 690    | 23698         | 0.0           | 820    | 2717          | 0.0           | 950    | 3450          | 0.0           |
| 435    | 68228         | 30.5          | 565    | 146577        | 65.8          | 695    | 20309         | 0.0           | 825    | 2236          | 0.0           | 955    | 5051          | 0.0           |
| 440    | 99323         | 55.5          | 570    | 154581        | 54.6          | 700    | 17890         | 0.0           | 830    | 2628          | 0.0           | 960    | 3176          | 0.0           |
| 445    | 115584        | 77.4          | 575    | 162633        | 44.3          | 705    | 15500         | 0.0           | 835    | 3140          | 0.0           | 965    | 5178          | 0.0           |
| 450    | 94997         | 73.6          | 580    | 168101        | 34.6          | 710    | 13699         | 0.0           | 840    | 3675          | 0.0           | 970    | 6385          | 0.0           |
| 455    | 61433         | 53.7          | 585    | 173145        | 26.5          | 715    | 12398         | 0.0           | 845    | 3283          | 0.0           | 975    | 3810          | 0.0           |
| 460    | 43373         | 41.9          | 590    | 174675        | 19.5          | 720    | 11147         | 0.0           | 850    | 3055          | 0.0           | 980    | 4322          | 0.0           |
| 465    | 32472         | 34.3          | 595    | 173724        | 13.9          | 725    | 9761          | 0.0           | 855    | 2932          | 0.0           | 985    | 4200          | 0.0           |
| 470    | 24257         | 27.9          | 600    | 171241        | 9.7           | 730    | 8651          | 0.0           | 860    | 3382          | 0.0           | 990    | 4661          | 0.0           |
| 475    | 21690         | 27.1          | 605    | 165134        | 6.5           | 735    | 7730          | 0.0           | 865    | 2605          | 0.0           | 995    | 6746          | 0.0           |
| 480    | 23173         | 31.3          | 610    | 156652        | 4.2           | 740    | 6847          | 0.0           | 870    | 3325          | 0.0           | 1000   | 4150          | 0.0           |
| 485    | 27564         | 40.0          | 615    | 147879        | 2.7           | 745    | 6124          | 0.0           | 875    | 3325          | 0.0           |        |               |               |

REPORT NUMBER: SP1-2101-121-7

**Melanopic Flux vs. Wavelength**



**Melanopic Lumens: 4490.7 M/P: 0.5**

| 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    | 2672          | 0.0           | 490    | 34553         | 28.8          | 620    | 136720        | 0.1           | 750    | 5870          | 0.0           | 880    | 4216          | 0.0           |
| 365    | 2252          | 0.0           | 495    | 44336         | 36.6          | 625    | 126308        | 0.1           | 755    | 5421          | 0.0           | 885    | 4132          | 0.0           |
| 370    | 2217          | 0.0           | 500    | 54643         | 43.9          | 630    | 114625        | 0.0           | 760    | 5097          | 0.0           | 890    | 3992          | 0.0           |
| 375    | 2697          | 0.0           | 505    | 64676         | 49.6          | 635    | 103216        | 0.0           | 765    | 4626          | 0.0           | 895    | 3214          | 0.0           |
| 380    | 3039          | 0.0           | 510    | 73825         | 53.0          | 640    | 92605         | 0.0           | 770    | 3782          | 0.0           | 900    | 2580          | 0.0           |
| 385    | 2655          | 0.0           | 515    | 81872         | 53.5          | 645    | 83234         | 0.0           | 775    | 3506          | 0.0           | 905    | 1776          | 0.0           |
| 390    | 2357          | 0.0           | 520    | 88574         | 51.6          | 650    | 73263         | 0.0           | 780    | 3507          | 0.0           | 910    | 3995          | 0.0           |
| 395    | 2186          | 0.0           | 525    | 93289         | 47.3          | 655    | 64627         | 0.0           | 785    | 3267          | 0.0           | 915    | 4288          | 0.0           |
| 400    | 2015          | 0.0           | 530    | 98393         | 42.5          | 660    | 56614         | 0.0           | 790    | 2849          | 0.0           | 920    | 2446          | 0.0           |
| 405    | 2234          | 0.0           | 535    | 103269        | 37.2          | 665    | 49537         | 0.0           | 795    | 3037          | 0.0           | 925    | 3009          | 0.0           |
| 410    | 3412          | 0.1           | 540    | 107316        | 31.4          | 670    | 42866         | 0.0           | 800    | 2716          | 0.0           | 930    | 3026          | 0.0           |
| 415    | 6135          | 0.4           | 545    | 113101        | 26.3          | 675    | 36708         | 0.0           | 805    | 2648          | 0.0           | 935    | 4734          | 0.0           |
| 420    | 12146         | 1.4           | 550    | 120690        | 21.7          | 680    | 31814         | 0.0           | 810    | 3187          | 0.0           | 940    | 3719          | 0.0           |
| 425    | 23983         | 3.7           | 555    | 128583        | 17.3          | 685    | 27485         | 0.0           | 815    | 2931          | 0.0           | 945    | 1480          | 0.0           |
| 430    | 42142         | 8.9           | 560    | 137796        | 13.6          | 690    | 23698         | 0.0           | 820    | 2717          | 0.0           | 950    | 3450          | 0.0           |
| 435    | 68228         | 18.2          | 565    | 146577        | 10.3          | 695    | 20309         | 0.0           | 825    | 2236          | 0.0           | 955    | 5051          | 0.0           |
| 440    | 99323         | 33.2          | 570    | 154581        | 7.6           | 700    | 17890         | 0.0           | 830    | 2628          | 0.0           | 960    | 3176          | 0.0           |
| 445    | 115584        | 45.6          | 575    | 162633        | 5.4           | 705    | 15500         | 0.0           | 835    | 3140          | 0.0           | 965    | 5178          | 0.0           |
| 450    | 94997         | 43.8          | 580    | 168101        | 3.8           | 710    | 13699         | 0.0           | 840    | 3675          | 0.0           | 970    | 6385          | 0.0           |
| 455    | 61433         | 32.2          | 585    | 173145        | 2.6           | 715    | 12398         | 0.0           | 845    | 3283          | 0.0           | 975    | 3810          | 0.0           |
| 460    | 43373         | 25.6          | 590    | 174675        | 1.7           | 720    | 11147         | 0.0           | 850    | 3055          | 0.0           | 980    | 4322          | 0.0           |
| 465    | 32472         | 21.2          | 595    | 173724        | 1.1           | 725    | 9761          | 0.0           | 855    | 2932          | 0.0           | 985    | 4200          | 0.0           |
| 470    | 24257         | 17.4          | 600    | 171241        | 0.7           | 730    | 8651          | 0.0           | 860    | 3382          | 0.0           | 990    | 4661          | 0.0           |
| 475    | 21690         | 16.6          | 605    | 165134        | 0.5           | 735    | 7730          | 0.0           | 865    | 2605          | 0.0           | 995    | 6746          | 0.0           |
| 480    | 23173         | 18.6          | 610    | 156652        | 0.3           | 740    | 6847          | 0.0           | 870    | 3325          | 0.0           | 1000   | 4150          | 0.0           |
| 485    | 27564         | 22.7          | 615    | 147879        | 0.2           | 745    | 6124          | 0.0           | 875    | 3325          | 0.0           |        |               |               |

**Summary**

$R_f = 76.9$   
 $R_g = 94.4$   
 CIE  $R_a = 73.1$   
 $R_g = -34.6$



**Color Vector Graphics**





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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 68 | CES51 = 90 | CES76 = 63 |
| CES02 = 62 | CES27 = 88 | CES52 = 89 | CES77 = 80 |
| CES03 = 31 | CES28 = 87 | CES53 = 80 | CES78 = 65 |
| CES04 = 70 | CES29 = 67 | CES54 = 84 | CES79 = 87 |
| CES05 = 48 | CES30 = 74 | CES55 = 84 | CES80 = 86 |
| CES06 = 51 | CES31 = 71 | CES56 = 75 | CES81 = 75 |
| CES07 = 40 | CES32 = 67 | CES57 = 74 | CES82 = 94 |
| CES08 = 39 | CES33 = 74 | CES58 = 76 | CES83 = 91 |
| CES09 = 29 | CES34 = 78 | CES59 = 87 | CES84 = 89 |
| CES10 = 75 | CES35 = 89 | CES60 = 93 | CES85 = 80 |
| CES11 = 58 | CES36 = 98 | CES61 = 86 | CES86 = 66 |
| CES12 = 64 | CES37 = 86 | CES62 = 89 | CES87 = 79 |
| CES13 = 43 | CES38 = 82 | CES63 = 77 | CES88 = 79 |
| CES14 = 74 | CES39 = 95 | CES64 = 74 | CES89 = 70 |
| CES15 = 71 | CES40 = 91 | CES65 = 68 | CES90 = 77 |
| CES16 = 47 | CES41 = 89 | CES66 = 71 | CES91 = 88 |
| CES17 = 50 | CES42 = 88 | CES67 = 69 | CES92 = 60 |
| CES18 = 56 | CES43 = 82 | CES68 = 74 | CES93 = 77 |
| CES19 = 72 | CES44 = 99 | CES69 = 82 | CES94 = 52 |
| CES20 = 65 | CES45 = 87 | CES70 = 67 | CES95 = 69 |
| CES21 = 86 | CES46 = 82 | CES71 = 66 | CES96 = 78 |
| CES22 = 79 | CES47 = 82 | CES72 = 88 | CES97 = 85 |
| CES23 = 92 | CES48 = 72 | CES73 = 59 | CES98 = 76 |
| CES24 = 91 | CES49 = 82 | CES74 = 97 | CES99 = 63 |
| CES25 = 72 | CES50 = 88 | CES75 = 66 |            |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)