

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: P438504

Luminaire Tested: **ISW-SA1D-730-U-SL3-HSS**

Issue Date: 12/10/2020

Test Information

Test Method: LM-79-08
Report Number: P438504
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-SA1D-730-U-SL3-HSS
Description: IMPACT ELITE LED WEDGE LUMINAIRE
(1) 70 CRI, 3000K, 800mA 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: 4272 lumens
Efficiency: N/A
Efficacy: 94.5 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type III - Short
BUG Rating: B1 - U0 - G1

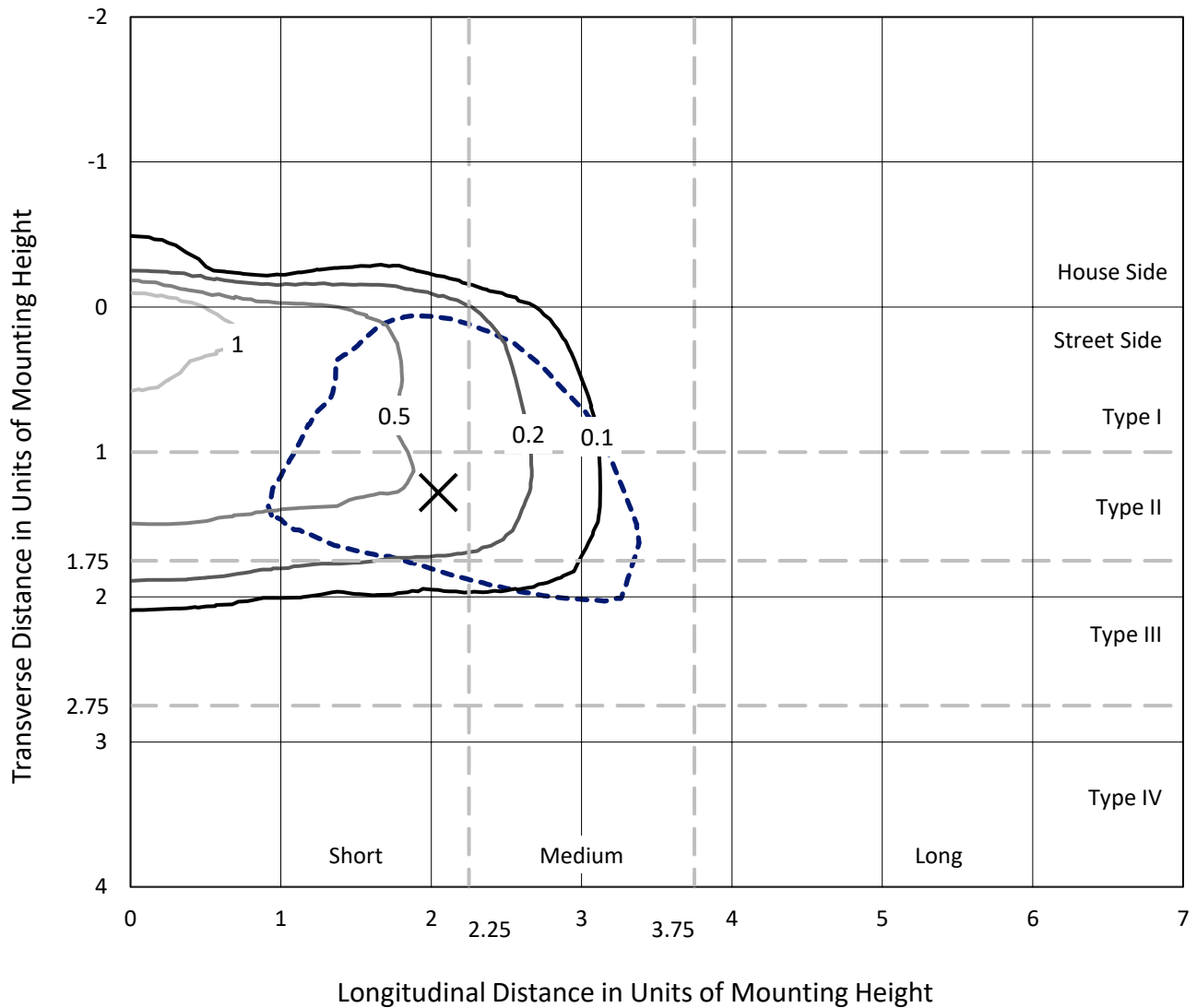
Input Watts (W): 45.2
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P438504
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Iso-Footcandle Lines of Horizontal Illumination

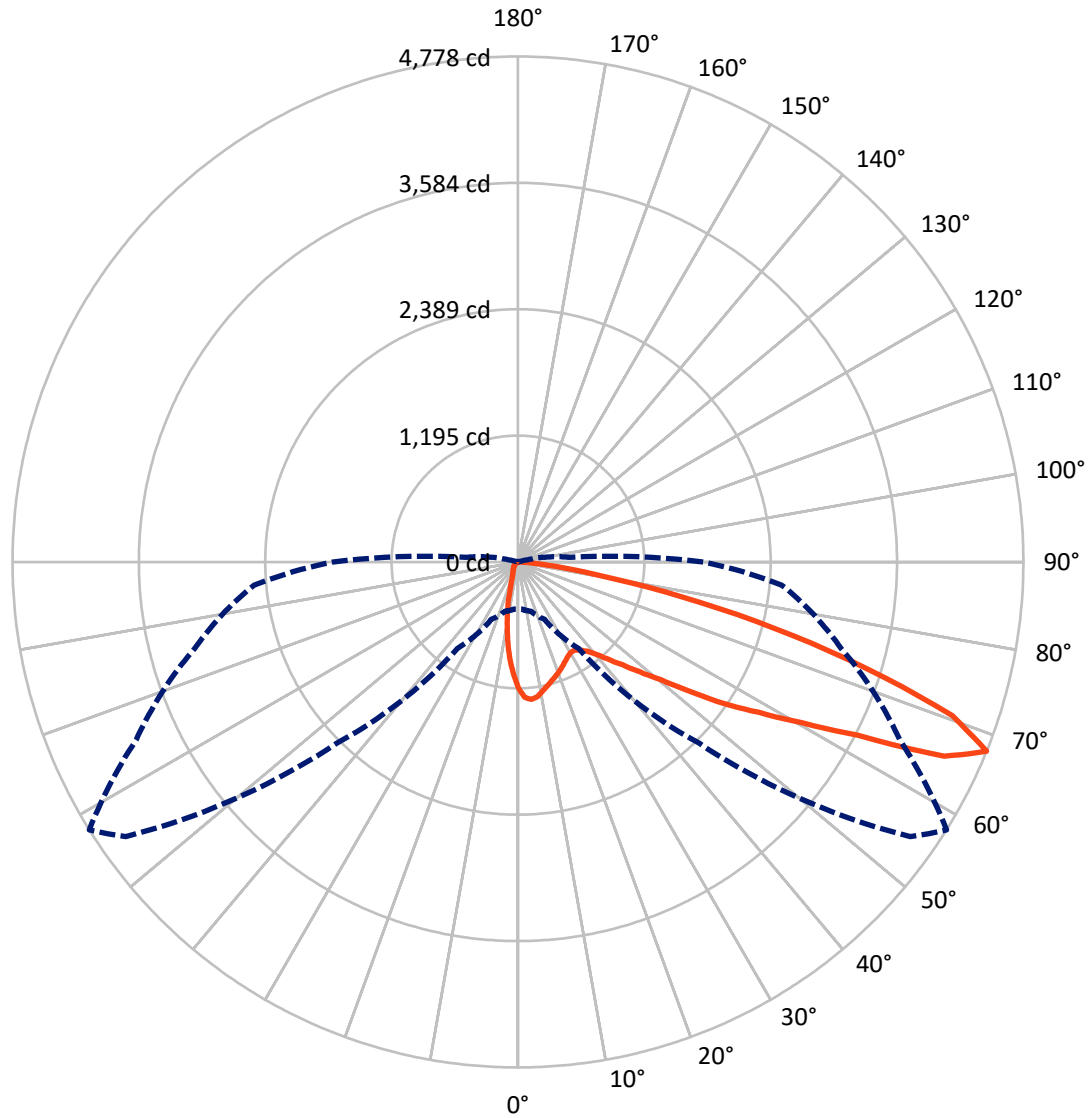
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 2 fc
 Type III - Short - N/A

REPORT NUMBER: P438504
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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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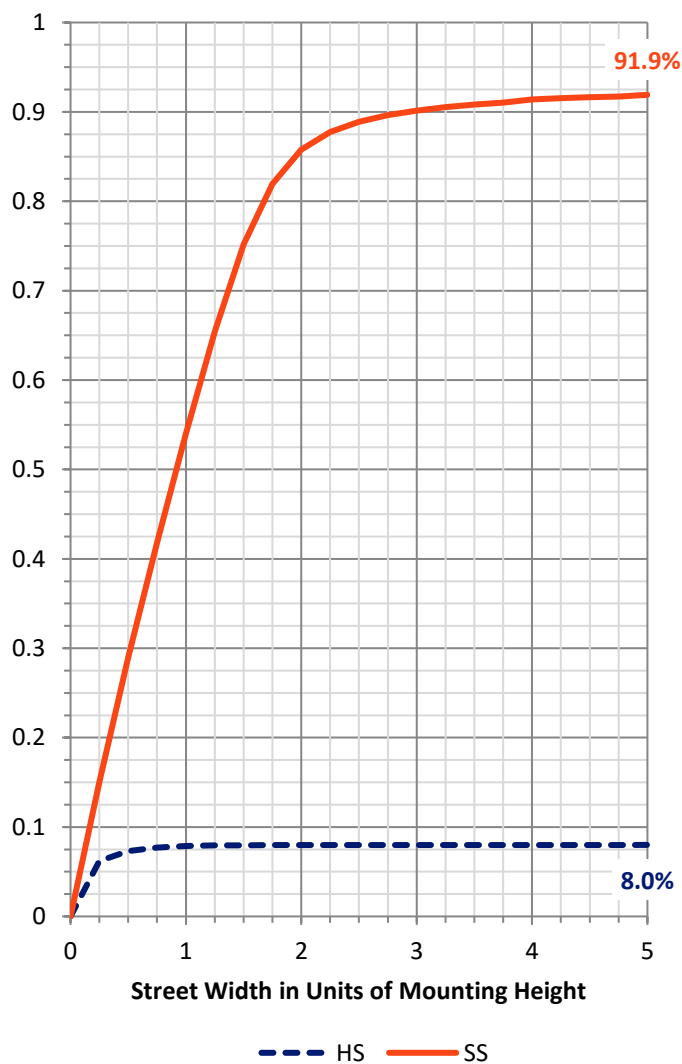
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 344.4 | 0.0 | 344.4 |
| | % Fixture | 8.1 | 0.0 | 8.1 |
| Street Side | Lumens | 3927.6 | 0.0 | 3927.6 |
| | % Fixture | 91.9 | 0.0 | 91.9 |
| Total | Lumens | 4272.0 | 0.0 | 4272.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 96.3 | 2.3 |
| 10°-20° | 202.9 | 4.8 |
| 20°-30° | 274.6 | 6.4 |
| 30°-40° | 377.7 | 8.8 |
| 40°-50° | 591.3 | 13.8 |
| 50°-60° | 996.1 | 23.3 |
| 60°-70° | 1182.1 | 27.7 |
| 70°-80° | 513.3 | 12.0 |
| 80°-90° | 37.7 | 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° | 4272.0 | 100.0 |
| 0°-180° | 4272.0 | 100.0 |

Coefficient of Utilization

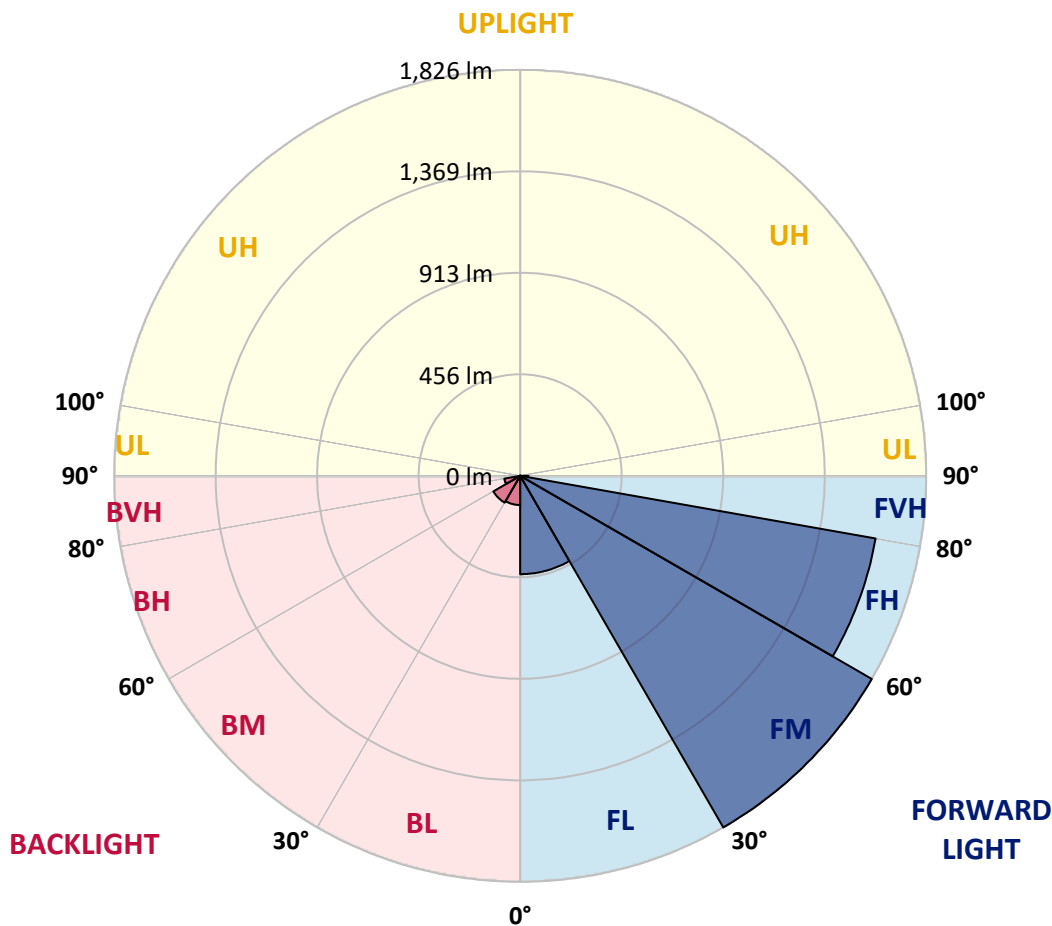


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 442.4 | 10.4 | | | |
| FM (30°-60°) | 1825.7 | 42.7 | | | |
| FH (60°-80°) | 1622.9 | 38.0 | | | G1/1800 |
| FVH (80°-90°) | 36.6 | 0.9 | | | G1/100 |
| BL (0°-30°) | 131.5 | 3.1 | B1/500 | | |
| BM (30°-60°) | 139.3 | 3.3 | B0/220 | | |
| BH (60°-80°) | 72.5 | 1.7 | B0/110 | | G0/110 |
| BVH (80°-90°) | 1.1 | 0.0 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G1
 Type III Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 58° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1202.8 | 1202.8 | 1202.8 | 1202.8 | 1202.8 | 1202.8 | 1202.8 | 1202.8 | 1202.8 | 1202.8 | 1202.8 |
| 2.5° | 1342.6 | 1335.2 | 1331.5 | 1329.7 | 1316.8 | 1305.8 | 1283.7 | 1281.9 | 1267.1 | 1239.6 | 1212.0 |
| 5° | 1313.1 | 1318.6 | 1320.5 | 1326.0 | 1324.2 | 1324.2 | 1309.4 | 1305.8 | 1285.5 | 1246.9 | 1193.6 |
| 7.5° | 1248.8 | 1246.9 | 1250.6 | 1265.3 | 1272.7 | 1287.4 | 1285.5 | 1289.2 | 1280.0 | 1237.7 | 1162.3 |
| 10° | 1155.0 | 1158.6 | 1169.7 | 1182.5 | 1202.8 | 1228.5 | 1245.1 | 1248.8 | 1256.1 | 1221.2 | 1132.9 |
| 12.5° | 1068.5 | 1074.0 | 1081.4 | 1107.1 | 1129.2 | 1169.7 | 1200.9 | 1208.3 | 1223.0 | 1204.6 | 1107.1 |
| 15° | 996.8 | 998.6 | 1004.2 | 1028.1 | 1064.8 | 1116.3 | 1162.3 | 1173.4 | 1197.3 | 1189.9 | 1086.9 |
| 17.5° | 939.8 | 941.6 | 949.0 | 969.2 | 998.6 | 1059.3 | 1121.9 | 1140.2 | 1175.2 | 1180.7 | 1064.8 |
| 20° | 908.5 | 908.5 | 908.5 | 921.4 | 950.8 | 1007.8 | 1081.4 | 1107.1 | 1156.8 | 1166.0 | 1046.5 |
| 22.5° | 899.3 | 899.3 | 895.6 | 899.3 | 917.7 | 965.5 | 1040.9 | 1072.2 | 1134.7 | 1160.5 | 1024.4 |
| 25° | 912.2 | 906.7 | 906.7 | 897.5 | 899.3 | 930.6 | 1004.2 | 1039.1 | 1121.9 | 1156.8 | 1013.3 |
| 27.5° | 936.1 | 934.3 | 926.9 | 919.6 | 908.5 | 915.9 | 972.9 | 1007.8 | 1109.0 | 1162.3 | 1004.2 |
| 30° | 963.7 | 963.7 | 960.0 | 956.3 | 937.9 | 923.2 | 958.2 | 989.4 | 1103.5 | 1171.5 | 998.6 |
| 32.5° | 995.0 | 993.1 | 1002.3 | 1006.0 | 983.9 | 956.3 | 961.9 | 991.3 | 1107.1 | 1199.1 | 1002.3 |
| 35° | 1031.7 | 1031.7 | 1048.3 | 1070.4 | 1052.0 | 1009.7 | 996.8 | 1022.5 | 1125.5 | 1228.5 | 1017.0 |
| 37.5° | 1072.2 | 1074.0 | 1103.5 | 1134.7 | 1121.9 | 1085.1 | 1063.0 | 1072.2 | 1164.2 | 1283.7 | 1050.1 |
| 40° | 1120.0 | 1120.0 | 1164.2 | 1215.7 | 1215.7 | 1173.4 | 1143.9 | 1151.3 | 1219.3 | 1362.8 | 1109.0 |
| 42.5° | 1171.5 | 1177.0 | 1239.6 | 1302.1 | 1320.5 | 1281.9 | 1250.6 | 1259.8 | 1307.6 | 1465.8 | 1195.4 |
| 45° | 1245.1 | 1261.6 | 1342.6 | 1403.2 | 1440.0 | 1421.6 | 1381.2 | 1388.5 | 1423.5 | 1614.7 | 1326.0 |
| 47.5° | 1375.7 | 1390.4 | 1460.3 | 1520.9 | 1566.9 | 1576.1 | 1557.7 | 1554.0 | 1568.8 | 1789.5 | 1491.5 |
| 50° | 1532.0 | 1544.9 | 1592.7 | 1644.2 | 1708.5 | 1763.7 | 1752.7 | 1747.2 | 1752.7 | 1980.7 | 1693.8 |
| 52.5° | 1686.5 | 1680.9 | 1738.0 | 1765.5 | 1855.7 | 1977.0 | 2024.9 | 2024.9 | 1995.4 | 2181.2 | 1892.4 |
| 55° | 1824.4 | 1848.3 | 1909.0 | 1958.7 | 2034.1 | 2179.3 | 2341.2 | 2361.4 | 2260.3 | 2379.8 | 2058.0 |
| 57.5° | 1807.8 | 1831.8 | 1943.9 | 2100.3 | 2322.8 | 2519.6 | 2677.7 | 2681.4 | 2534.3 | 2532.5 | 2262.1 |
| 60° | 1614.7 | 1616.6 | 1767.4 | 2004.6 | 2449.7 | 3010.6 | 3102.6 | 3084.2 | 2773.4 | 2745.8 | 2543.5 |
| 62.5° | 1136.6 | 1129.2 | 1324.2 | 1625.8 | 2260.3 | 3279.1 | 3746.3 | 3606.5 | 3170.6 | 3080.5 | 2806.5 |
| 65° | 662.1 | 658.4 | 733.8 | 971.1 | 1712.2 | 3089.7 | 4404.7 | 4426.7 | 3692.9 | 3251.5 | 2751.3 |
| 67.5° | 445.1 | 448.7 | 483.7 | 599.5 | 998.6 | 2423.9 | 4526.0 | 4778.0 | 3983.5 | 3163.3 | 2503.0 |
| 70° | 327.4 | 327.4 | 354.9 | 441.4 | 592.2 | 1519.1 | 3954.1 | 4356.9 | 4040.5 | 2942.6 | 2094.7 |
| 72.5° | 233.6 | 233.6 | 272.2 | 356.8 | 483.7 | 783.5 | 2938.9 | 3453.8 | 3411.5 | 2442.3 | 1449.2 |
| 75° | 149.0 | 152.6 | 194.9 | 292.4 | 441.4 | 502.1 | 1993.6 | 2503.0 | 2379.8 | 1366.5 | 617.9 |
| 77.5° | 57.0 | 64.4 | 104.8 | 215.2 | 386.2 | 417.5 | 1136.6 | 1578.0 | 1256.1 | 478.2 | 165.5 |
| 80° | 20.2 | 20.2 | 34.9 | 110.3 | 272.2 | 343.9 | 594.0 | 783.5 | 408.3 | 115.9 | 62.5 |
| 82.5° | 3.7 | 3.7 | 12.9 | 46.0 | 134.3 | 239.1 | 345.8 | 386.2 | 160.0 | 38.6 | 36.8 |
| 85° | 0.0 | 0.0 | 1.8 | 9.2 | 31.3 | 23.9 | 137.9 | 130.6 | 49.7 | 16.6 | 23.9 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 1.8 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 |
| 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-SA1D-730-U-SL3-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1202.8 | 1202.8 | 1202.8 | 1202.8 | 1202.8 | 1202.8 | 1202.8 | 1202.8 | 1202.8 | 1202.8 | 1202.8 |
| 2.5° | 1189.9 | 1175.2 | 1132.9 | 1103.5 | 1063.0 | 1022.5 | 996.8 | 976.6 | 967.4 | 954.5 | 960.0 |
| 5° | 1160.5 | 1127.4 | 1050.1 | 980.2 | 914.0 | 844.2 | 792.7 | 746.7 | 732.0 | 706.2 | 702.5 |
| 7.5° | 1116.3 | 1070.4 | 956.3 | 846.0 | 739.3 | 651.0 | 572.0 | 511.3 | 456.1 | 432.2 | 446.9 |
| 10° | 1074.0 | 1011.5 | 862.5 | 715.4 | 573.8 | 450.6 | 356.8 | 283.2 | 240.9 | 222.5 | 226.2 |
| 12.5° | 1033.6 | 954.5 | 765.1 | 590.4 | 417.5 | 277.7 | 202.3 | 163.7 | 150.8 | 149.0 | 145.3 |
| 15° | 998.6 | 901.2 | 678.6 | 457.9 | 277.7 | 174.7 | 143.5 | 134.3 | 132.4 | 132.4 | 132.4 |
| 17.5° | 960.0 | 846.0 | 584.8 | 336.6 | 182.1 | 136.1 | 126.9 | 125.1 | 123.2 | 123.2 | 123.2 |
| 20° | 930.6 | 798.2 | 498.4 | 235.4 | 139.8 | 121.4 | 117.7 | 117.7 | 115.9 | 115.9 | 115.9 |
| 22.5° | 899.3 | 748.5 | 413.8 | 172.9 | 119.5 | 112.2 | 108.5 | 106.7 | 106.7 | 104.8 | 104.8 |
| 25° | 869.9 | 702.5 | 332.9 | 132.4 | 106.7 | 101.2 | 97.5 | 95.6 | 95.6 | 93.8 | 92.0 |
| 27.5° | 851.5 | 665.8 | 261.2 | 112.2 | 95.6 | 92.0 | 88.3 | 84.6 | 80.9 | 79.1 | 79.1 |
| 30° | 838.6 | 621.6 | 198.6 | 97.5 | 88.3 | 82.8 | 77.2 | 71.7 | 66.2 | 64.4 | 64.4 |
| 32.5° | 820.2 | 586.7 | 152.6 | 88.3 | 79.1 | 73.6 | 66.2 | 60.7 | 55.2 | 51.5 | 51.5 |
| 35° | 820.2 | 557.3 | 117.7 | 79.1 | 71.7 | 64.4 | 58.9 | 49.7 | 44.1 | 42.3 | 40.5 |
| 37.5° | 833.1 | 524.1 | 97.5 | 73.6 | 66.2 | 58.9 | 51.5 | 42.3 | 36.8 | 34.9 | 34.9 |
| 40° | 862.5 | 513.1 | 82.8 | 66.2 | 58.9 | 51.5 | 44.1 | 34.9 | 31.3 | 27.6 | 27.6 |
| 42.5° | 923.2 | 516.8 | 73.6 | 62.5 | 53.3 | 46.0 | 36.8 | 29.4 | 25.7 | 23.9 | 23.9 |
| 45° | 1011.5 | 527.8 | 68.0 | 57.0 | 47.8 | 38.6 | 31.3 | 25.7 | 20.2 | 18.4 | 18.4 |
| 47.5° | 1134.7 | 562.8 | 60.7 | 51.5 | 42.3 | 33.1 | 25.7 | 20.2 | 16.6 | 14.7 | 14.7 |
| 50° | 1281.9 | 623.5 | 57.0 | 46.0 | 38.6 | 27.6 | 20.2 | 14.7 | 11.0 | 11.0 | 11.0 |
| 52.5° | 1454.7 | 684.1 | 51.5 | 42.3 | 33.1 | 23.9 | 16.6 | 11.0 | 9.2 | 7.4 | 7.4 |
| 55° | 1600.0 | 737.5 | 46.0 | 38.6 | 27.6 | 18.4 | 12.9 | 9.2 | 7.4 | 5.5 | 5.5 |
| 57.5° | 1789.5 | 814.7 | 38.6 | 33.1 | 22.1 | 14.7 | 9.2 | 7.4 | 3.7 | 3.7 | 3.7 |
| 60° | 2043.3 | 906.7 | 33.1 | 27.6 | 16.6 | 11.0 | 7.4 | 3.7 | 3.7 | 1.8 | 1.8 |
| 62.5° | 2151.8 | 833.1 | 29.4 | 22.1 | 12.9 | 7.4 | 5.5 | 3.7 | 1.8 | 1.8 | 1.8 |
| 65° | 2032.2 | 680.5 | 23.9 | 16.6 | 9.2 | 5.5 | 3.7 | 1.8 | 1.8 | 0.0 | 0.0 |
| 67.5° | 1752.7 | 502.1 | 20.2 | 11.0 | 7.4 | 3.7 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 |
| 70° | 1429.0 | 371.5 | 14.7 | 7.4 | 3.7 | 3.7 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 |
| 72.5° | 989.4 | 224.4 | 11.0 | 5.5 | 3.7 | 1.8 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 |
| 75° | 384.4 | 88.3 | 9.2 | 5.5 | 3.7 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 77.5° | 108.5 | 31.3 | 7.4 | 3.7 | 3.7 | 1.8 | 1.8 | 1.8 | 0.0 | 0.0 | 0.0 |
| 80° | 44.1 | 16.6 | 5.5 | 3.7 | 3.7 | 3.7 | 1.8 | 1.8 | 0.0 | 0.0 | 0.0 |
| 82.5° | 27.6 | 9.2 | 3.7 | 1.8 | 1.8 | 1.8 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 18.4 | 5.5 | 3.7 | 1.8 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 1.8 |
| 87.5° | 3.7 | 3.7 | 1.8 | 1.8 | 1.8 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 |
| 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: SP1-1908-441-2-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-730-U-5WQ**
 Description: McGRAW EDISON ROADWAY AND AREA LUMINAIRE

THIS IS A REVISION OF SP1-1908-441-2-R3. TO UPDATE THE CATALOG INFORMATION.TESTED IN SITU. (1) 70 CRI, 3000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

Spectral Parameters

CCT (K): 2993
 CIE u': 0.2508
 CIE v': 0.5215
 Duv: 0.0000
 CIE x: 0.4374
 CIE y: 0.4043
 CIE z: 0.1583
 Peak Wavelength (nm): 593
 Dominant Wavelength (nm): 582
 Purity: 53

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 71.8 | | |
| R1: | 67.5 | R9: | -38.3 |
| R2: | 82.9 | R10: | 62.5 |
| R3: | 94.7 | R11: | 63.7 |
| R4: | 67.7 | R12: | 57.8 |
| R5: | 67.9 | R13: | 70.4 |
| R6: | 77.6 | R14: | 97.3 |
| R7: | 76.0 | | |
| R8: | 40.5 | | |

Rf: 75.7
 Rg: 93.9



Test Conditions

Stabilization Time: 53M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.0./44%
 Sphere Temperature (°C): 25.7

REPORT NUMBER: SP1-1908-441-2-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 3000K 4-step quadrangle

REPORT NUMBER: SP1-1908-441-2-R4

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 | 2397 | NR | 490 | 24908 | NR | 620 | 118784 | NR | 750 | 5037 | NR | 880 | 2677 | NR |
| 365 | 2084 | NR | 495 | 30998 | NR | 625 | 108951 | NR | 755 | 4413 | NR | 885 | 2940 | NR |
| 370 | 2143 | NR | 500 | 37103 | NR | 630 | 99573 | NR | 760 | 4189 | NR | 890 | 3116 | NR |
| 375 | 2413 | NR | 505 | 42987 | NR | 635 | 90444 | NR | 765 | 3677 | NR | 895 | 3345 | NR |
| 380 | 2172 | NR | 510 | 48702 | NR | 640 | 80749 | NR | 770 | 3366 | NR | 900 | 2312 | NR |
| 385 | 1997 | NR | 515 | 53741 | NR | 645 | 71664 | NR | 775 | 3211 | NR | 905 | 2829 | NR |
| 390 | 1830 | NR | 520 | 57283 | NR | 650 | 63936 | NR | 780 | 2682 | NR | 910 | 2783 | NR |
| 395 | 1861 | NR | 525 | 61876 | NR | 655 | 56611 | NR | 785 | 2804 | NR | 915 | 2662 | NR |
| 400 | 1717 | NR | 530 | 65398 | NR | 660 | 49763 | NR | 790 | 2581 | NR | 920 | 3047 | NR |
| 405 | 1761 | NR | 535 | 69597 | NR | 665 | 42891 | NR | 795 | 2711 | NR | 925 | 2256 | NR |
| 410 | 2680 | NR | 540 | 74214 | NR | 670 | 36939 | NR | 800 | 2609 | NR | 930 | 2976 | NR |
| 415 | 4374 | NR | 545 | 79911 | NR | 675 | 31946 | NR | 805 | 2581 | NR | 935 | 3503 | NR |
| 420 | 8071 | NR | 550 | 86153 | NR | 680 | 27385 | NR | 810 | 2404 | NR | 940 | 4226 | NR |
| 425 | 15169 | NR | 555 | 93952 | NR | 685 | 23504 | NR | 815 | 2556 | NR | 945 | 2930 | NR |
| 430 | 26038 | NR | 560 | 102904 | NR | 690 | 20210 | NR | 820 | 2742 | NR | 950 | 2115 | NR |
| 435 | 41316 | NR | 565 | 112009 | NR | 695 | 17459 | NR | 825 | 2014 | NR | 955 | 2634 | NR |
| 440 | 59674 | NR | 570 | 121662 | NR | 700 | 15207 | NR | 830 | 2488 | NR | 960 | 4200 | NR |
| 445 | 72751 | NR | 575 | 130476 | NR | 705 | 13322 | NR | 835 | 2625 | NR | 965 | 1982 | NR |
| 450 | 65091 | NR | 580 | 137926 | NR | 710 | 11676 | NR | 840 | 2754 | NR | 970 | 3613 | NR |
| 455 | 44894 | NR | 585 | 143406 | NR | 715 | 10626 | NR | 845 | 2708 | NR | 975 | 4034 | NR |
| 460 | 32712 | NR | 590 | 147039 | NR | 720 | 9416 | NR | 850 | 2608 | NR | 980 | 3922 | NR |
| 465 | 25296 | NR | 595 | 147365 | NR | 725 | 8333 | NR | 855 | 2605 | NR | 985 | 1909 | NR |
| 470 | 19318 | NR | 600 | 145800 | NR | 730 | 7134 | NR | 860 | 1765 | NR | 990 | 3617 | NR |
| 475 | 17265 | NR | 605 | 141363 | NR | 735 | 6437 | NR | 865 | 2581 | NR | 995 | 4767 | NR |
| 480 | 18260 | NR | 610 | 134199 | NR | 740 | 5834 | NR | 870 | 3016 | NR | 1000 | 2528 | NR |
| 485 | 20845 | NR | 615 | 127683 | NR | 745 | 5500 | NR | 875 | 3952 | NR | | | |

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Scotopic Flux vs. Wavelength



Scotopic Lumens: 8494.8

S/P: 1.23

| 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 | 2397 | NR | 490 | 24908 | NR | 620 | 118784 | NR | 750 | 5037 | NR | 880 | 2677 | NR |
| 365 | 2084 | NR | 495 | 30998 | NR | 625 | 108951 | NR | 755 | 4413 | NR | 885 | 2940 | NR |
| 370 | 2143 | NR | 500 | 37103 | NR | 630 | 99573 | NR | 760 | 4189 | NR | 890 | 3116 | NR |
| 375 | 2413 | NR | 505 | 42987 | NR | 635 | 90444 | NR | 765 | 3677 | NR | 895 | 3345 | NR |
| 380 | 2172 | NR | 510 | 48702 | NR | 640 | 80749 | NR | 770 | 3366 | NR | 900 | 2312 | NR |
| 385 | 1997 | NR | 515 | 53741 | NR | 645 | 71664 | NR | 775 | 3211 | NR | 905 | 2829 | NR |
| 390 | 1830 | NR | 520 | 57283 | NR | 650 | 63936 | NR | 780 | 2682 | NR | 910 | 2783 | NR |
| 395 | 1861 | NR | 525 | 61876 | NR | 655 | 56611 | NR | 785 | 2804 | NR | 915 | 2662 | NR |
| 400 | 1717 | NR | 530 | 65398 | NR | 660 | 49763 | NR | 790 | 2581 | NR | 920 | 3047 | NR |
| 405 | 1761 | NR | 535 | 69597 | NR | 665 | 42891 | NR | 795 | 2711 | NR | 925 | 2256 | NR |
| 410 | 2680 | NR | 540 | 74214 | NR | 670 | 36939 | NR | 800 | 2609 | NR | 930 | 2976 | NR |
| 415 | 4374 | NR | 545 | 79911 | NR | 675 | 31946 | NR | 805 | 2581 | NR | 935 | 3503 | NR |
| 420 | 8071 | NR | 550 | 86153 | NR | 680 | 27385 | NR | 810 | 2404 | NR | 940 | 4226 | NR |
| 425 | 15169 | NR | 555 | 93952 | NR | 685 | 23504 | NR | 815 | 2556 | NR | 945 | 2930 | NR |
| 430 | 26038 | NR | 560 | 102904 | NR | 690 | 20210 | NR | 820 | 2742 | NR | 950 | 2115 | NR |
| 435 | 41316 | NR | 565 | 112009 | NR | 695 | 17459 | NR | 825 | 2014 | NR | 955 | 2634 | NR |
| 440 | 59674 | NR | 570 | 121662 | NR | 700 | 15207 | NR | 830 | 2488 | NR | 960 | 4200 | NR |
| 445 | 72751 | NR | 575 | 130476 | NR | 705 | 13322 | NR | 835 | 2625 | NR | 965 | 1982 | NR |
| 450 | 65091 | NR | 580 | 137926 | NR | 710 | 11676 | NR | 840 | 2754 | NR | 970 | 3613 | NR |
| 455 | 44894 | NR | 585 | 143406 | NR | 715 | 10626 | NR | 845 | 2708 | NR | 975 | 4034 | NR |
| 460 | 32712 | NR | 590 | 147039 | NR | 720 | 9416 | NR | 850 | 2608 | NR | 980 | 3922 | NR |
| 465 | 25296 | NR | 595 | 147365 | NR | 725 | 8333 | NR | 855 | 2605 | NR | 985 | 1909 | NR |
| 470 | 19318 | NR | 600 | 145800 | NR | 730 | 7134 | NR | 860 | 1765 | NR | 990 | 3617 | NR |
| 475 | 17265 | NR | 605 | 141363 | NR | 735 | 6437 | NR | 865 | 2581 | NR | 995 | 4767 | NR |
| 480 | 18260 | NR | 610 | 134199 | NR | 740 | 5834 | NR | 870 | 3016 | NR | 1000 | 2528 | NR |
| 485 | 20845 | NR | 615 | 127683 | NR | 745 | 5500 | NR | 875 | 3952 | NR | | | |

REPORT NUMBER: SP1-1908-441-2-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 3101.5 M/P: 0.45

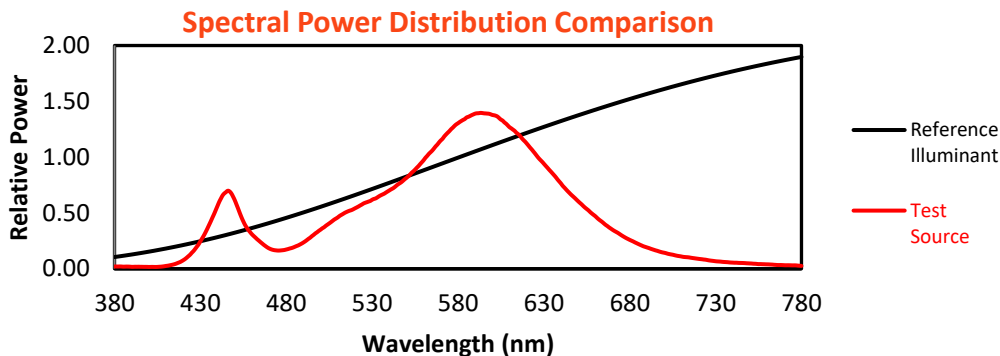
| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 2397 | NR | 490 | 24908 | NR | 620 | 118784 | NR | 750 | 5037 | NR | 880 | 2677 | NR |
| 365 | 2084 | NR | 495 | 30998 | NR | 625 | 108951 | NR | 755 | 4413 | NR | 885 | 2940 | NR |
| 370 | 2143 | NR | 500 | 37103 | NR | 630 | 99573 | NR | 760 | 4189 | NR | 890 | 3116 | NR |
| 375 | 2413 | NR | 505 | 42987 | NR | 635 | 90444 | NR | 765 | 3677 | NR | 895 | 3345 | NR |
| 380 | 2172 | NR | 510 | 48702 | NR | 640 | 80749 | NR | 770 | 3366 | NR | 900 | 2312 | NR |
| 385 | 1997 | NR | 515 | 53741 | NR | 645 | 71664 | NR | 775 | 3211 | NR | 905 | 2829 | NR |
| 390 | 1830 | NR | 520 | 57283 | NR | 650 | 63936 | NR | 780 | 2682 | NR | 910 | 2783 | NR |
| 395 | 1861 | NR | 525 | 61876 | NR | 655 | 56611 | NR | 785 | 2804 | NR | 915 | 2662 | NR |
| 400 | 1717 | NR | 530 | 65398 | NR | 660 | 49763 | NR | 790 | 2581 | NR | 920 | 3047 | NR |
| 405 | 1761 | NR | 535 | 69597 | NR | 665 | 42891 | NR | 795 | 2711 | NR | 925 | 2256 | NR |
| 410 | 2680 | NR | 540 | 74214 | NR | 670 | 36939 | NR | 800 | 2609 | NR | 930 | 2976 | NR |
| 415 | 4374 | NR | 545 | 79911 | NR | 675 | 31946 | NR | 805 | 2581 | NR | 935 | 3503 | NR |
| 420 | 8071 | NR | 550 | 86153 | NR | 680 | 27385 | NR | 810 | 2404 | NR | 940 | 4226 | NR |
| 425 | 15169 | NR | 555 | 93952 | NR | 685 | 23504 | NR | 815 | 2556 | NR | 945 | 2930 | NR |
| 430 | 26038 | NR | 560 | 102904 | NR | 690 | 20210 | NR | 820 | 2742 | NR | 950 | 2115 | NR |
| 435 | 41316 | NR | 565 | 112009 | NR | 695 | 17459 | NR | 825 | 2014 | NR | 955 | 2634 | NR |
| 440 | 59674 | NR | 570 | 121662 | NR | 700 | 15207 | NR | 830 | 2488 | NR | 960 | 4200 | NR |
| 445 | 72751 | NR | 575 | 130476 | NR | 705 | 13322 | NR | 835 | 2625 | NR | 965 | 1982 | NR |
| 450 | 65091 | NR | 580 | 137926 | NR | 710 | 11676 | NR | 840 | 2754 | NR | 970 | 3613 | NR |
| 455 | 44894 | NR | 585 | 143406 | NR | 715 | 10626 | NR | 845 | 2708 | NR | 975 | 4034 | NR |
| 460 | 32712 | NR | 590 | 147039 | NR | 720 | 9416 | NR | 850 | 2608 | NR | 980 | 3922 | NR |
| 465 | 25296 | NR | 595 | 147365 | NR | 725 | 8333 | NR | 855 | 2605 | NR | 985 | 1909 | NR |
| 470 | 19318 | NR | 600 | 145800 | NR | 730 | 7134 | NR | 860 | 1765 | NR | 990 | 3617 | NR |
| 475 | 17265 | NR | 605 | 141363 | NR | 735 | 6437 | NR | 865 | 2581 | NR | 995 | 4767 | NR |
| 480 | 18260 | NR | 610 | 134199 | NR | 740 | 5834 | NR | 870 | 3016 | NR | 1000 | 2528 | NR |
| 485 | 20845 | NR | 615 | 127683 | NR | 745 | 5500 | NR | 875 | 3952 | NR | | | |

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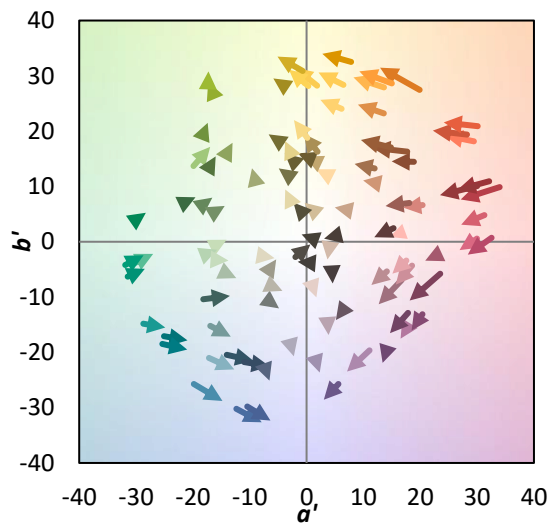
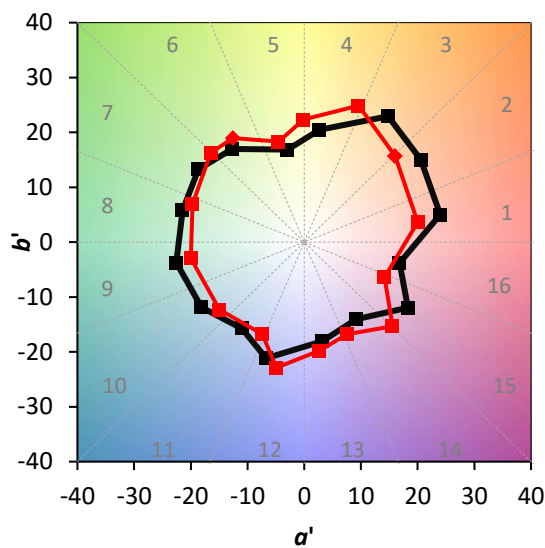
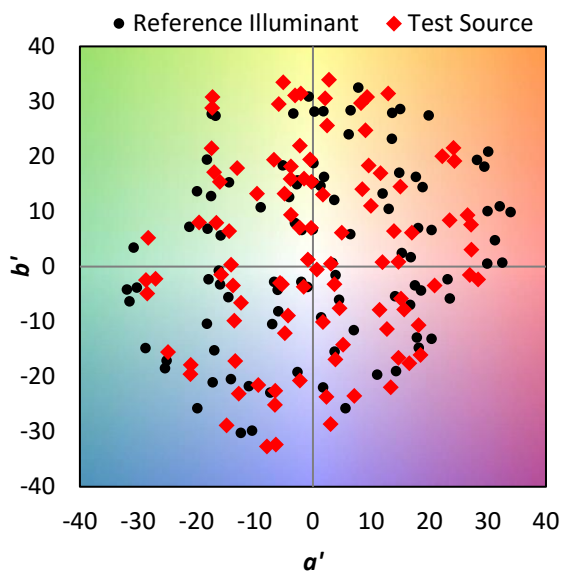
TM-30-18

Summary

$R_f = 75.7$
 $R_g = 93.9$
 CIE $R_a = 71.8$
 $R_g = -38.3$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 67 | CES51 = 87 | CES76 = 63 |
| CES02 = 63 | CES27 = 88 | CES52 = 86 | CES77 = 80 |
| CES03 = 31 | CES28 = 87 | CES53 = 78 | CES78 = 67 |
| CES04 = 71 | CES29 = 66 | CES54 = 84 | CES79 = 87 |
| CES05 = 49 | CES30 = 73 | CES55 = 84 | CES80 = 86 |
| CES06 = 51 | CES31 = 70 | CES56 = 75 | CES81 = 71 |
| CES07 = 41 | CES32 = 65 | CES57 = 74 | CES82 = 94 |
| CES08 = 40 | CES33 = 73 | CES58 = 76 | CES83 = 90 |
| CES09 = 29 | CES34 = 79 | CES59 = 85 | CES84 = 89 |
| CES10 = 76 | CES35 = 89 | CES60 = 93 | CES85 = 77 |
| CES11 = 59 | CES36 = 97 | CES61 = 84 | CES86 = 61 |
| CES12 = 65 | CES37 = 87 | CES62 = 91 | CES87 = 78 |
| CES13 = 43 | CES38 = 81 | CES63 = 77 | CES88 = 77 |
| CES14 = 74 | CES39 = 95 | CES64 = 72 | CES89 = 67 |
| CES15 = 71 | CES40 = 92 | CES65 = 68 | CES90 = 76 |
| CES16 = 47 | CES41 = 88 | CES66 = 69 | CES91 = 89 |
| CES17 = 50 | CES42 = 89 | CES67 = 67 | CES92 = 58 |
| CES18 = 56 | CES43 = 79 | CES68 = 72 | CES93 = 74 |
| CES19 = 73 | CES44 = 99 | CES69 = 81 | CES94 = 49 |
| CES20 = 66 | CES45 = 85 | CES70 = 66 | CES95 = 68 |
| CES21 = 87 | CES46 = 80 | CES71 = 67 | CES96 = 76 |
| CES22 = 79 | CES47 = 82 | CES72 = 88 | CES97 = 82 |
| CES23 = 92 | CES48 = 69 | CES73 = 59 | CES98 = 75 |
| CES24 = 91 | CES49 = 80 | CES74 = 95 | CES99 = 62 |
| CES25 = 73 | CES50 = 87 | CES75 = 69 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)