

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: P437535

Luminaire Tested: **ISS-SA1D-750-U-SL3-HSS**

Issue Date: 12/9/2020

Test Information

Test Method: LM-79-08
Report Number: P437535
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2011-074-17)
Test Lab: INNOVATION CENTER
Issue Date: 12/9/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: ISS-SA1D-750-U-SL3-HSS
Description: IMPACT ELITE LED QUARTER SPHERE LUMINAIRE
(1) 70 CRI, 5000K, 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: 4790 lumens
Efficiency: N/A
Efficacy: 106.0 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type III - Short
BUG Rating: B1 - U0 - G2

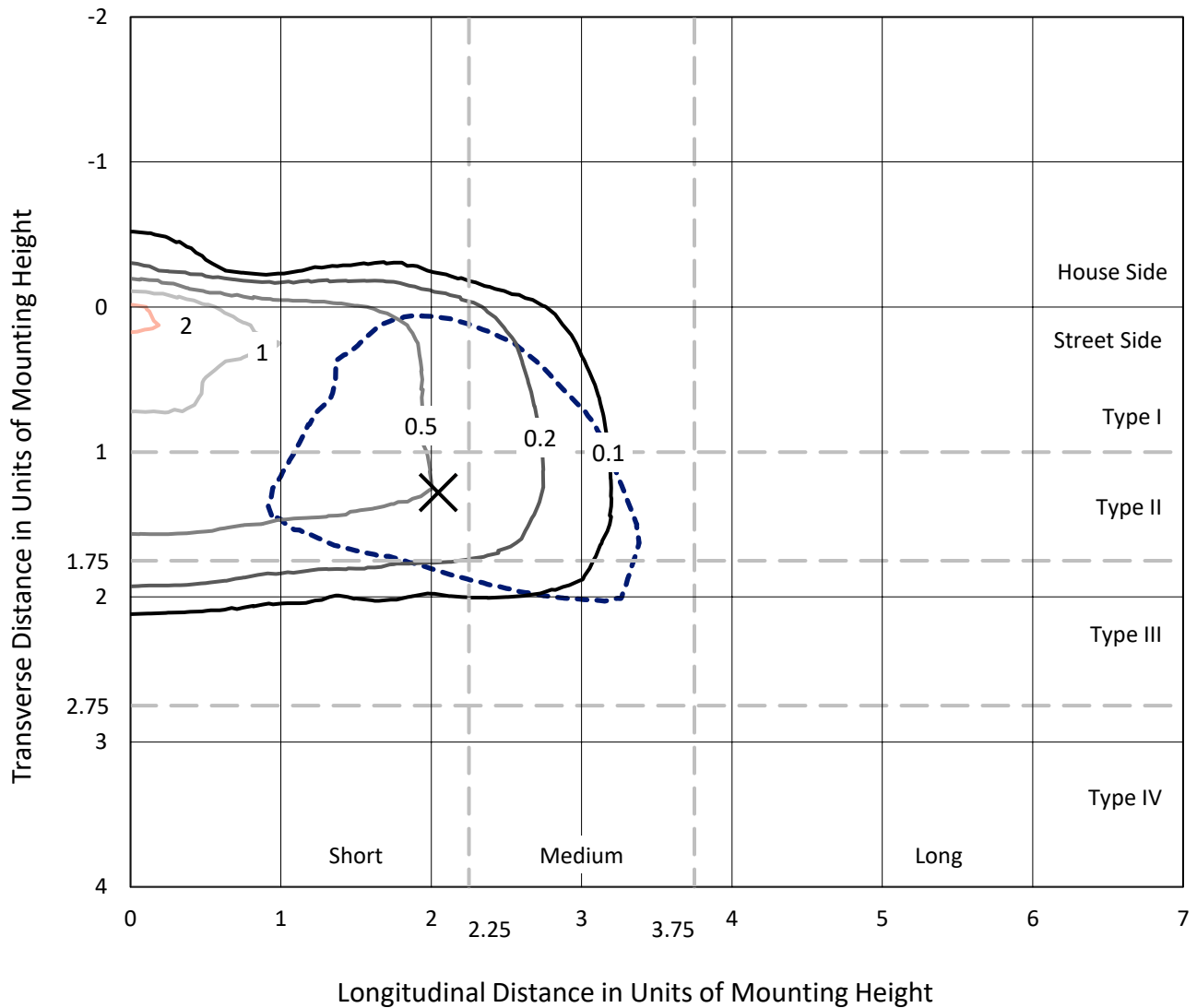
Input Watts (W): 45.2
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

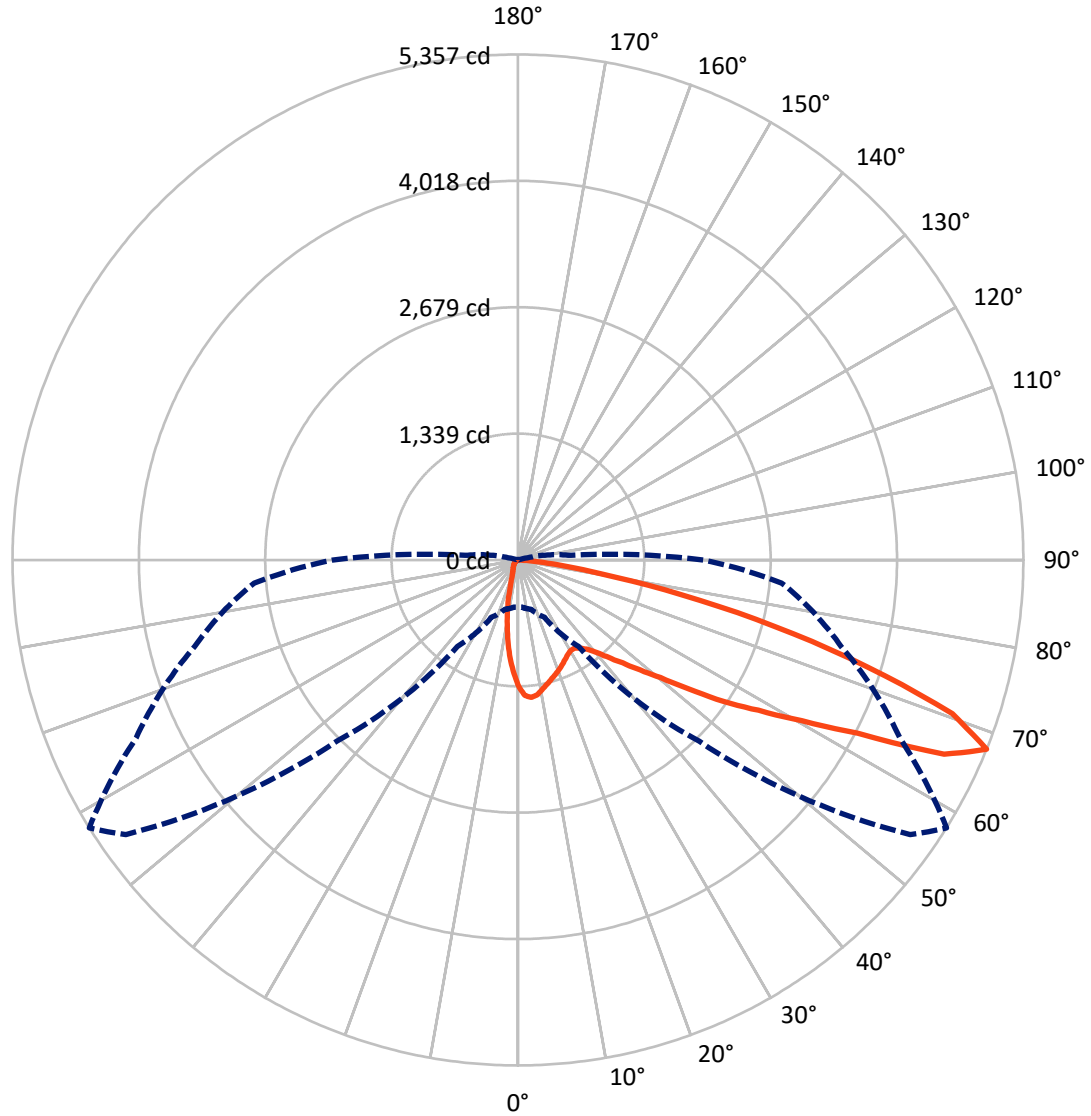
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 2.2 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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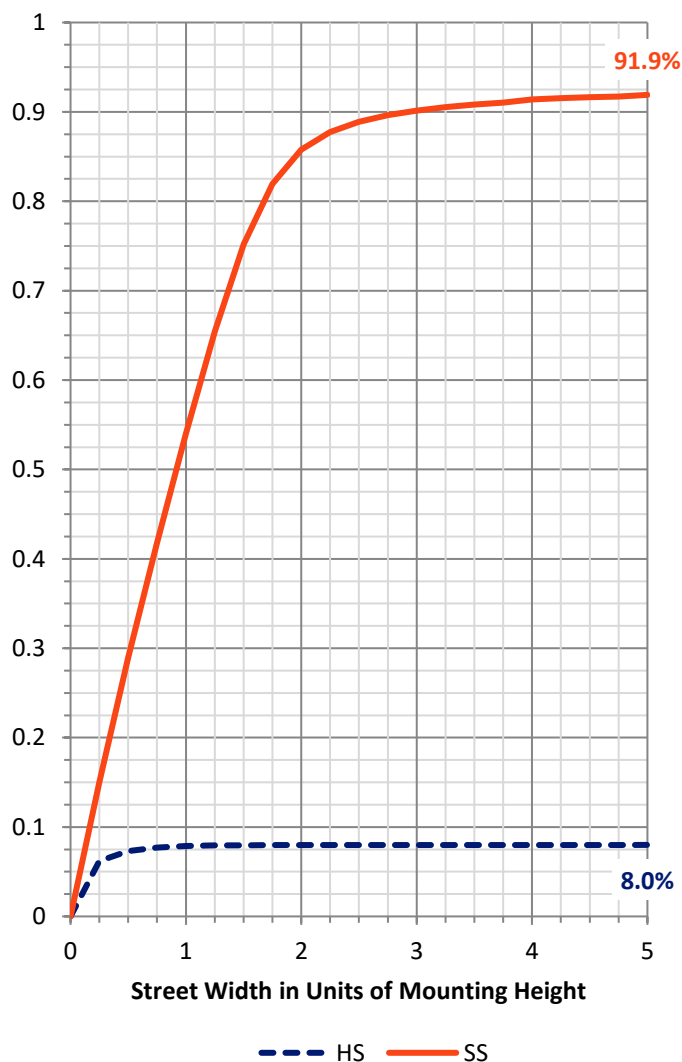
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 386.2 | 0.0 | 386.2 |
| | % Fixture | 8.1 | 0.0 | 8.1 |
| Street Side | Lumens | 4403.8 | 0.0 | 4403.8 |
| | % Fixture | 91.9 | 0.0 | 91.9 |
| Total | Lumens | 4790.0 | 0.0 | 4790.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 108.0 | 2.3 |
| 10°-20° | 227.6 | 4.8 |
| 20°-30° | 307.9 | 6.4 |
| 30°-40° | 423.5 | 8.8 |
| 40°-50° | 663.0 | 13.8 |
| 50°-60° | 1116.8 | 23.3 |
| 60°-70° | 1325.4 | 27.7 |
| 70°-80° | 575.6 | 12.0 |
| 80°-90° | 42.3 | 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° | 4790.0 | 100.0 |
| 0°-180° | 4790.0 | 100.0 |

Coefficient of Utilization



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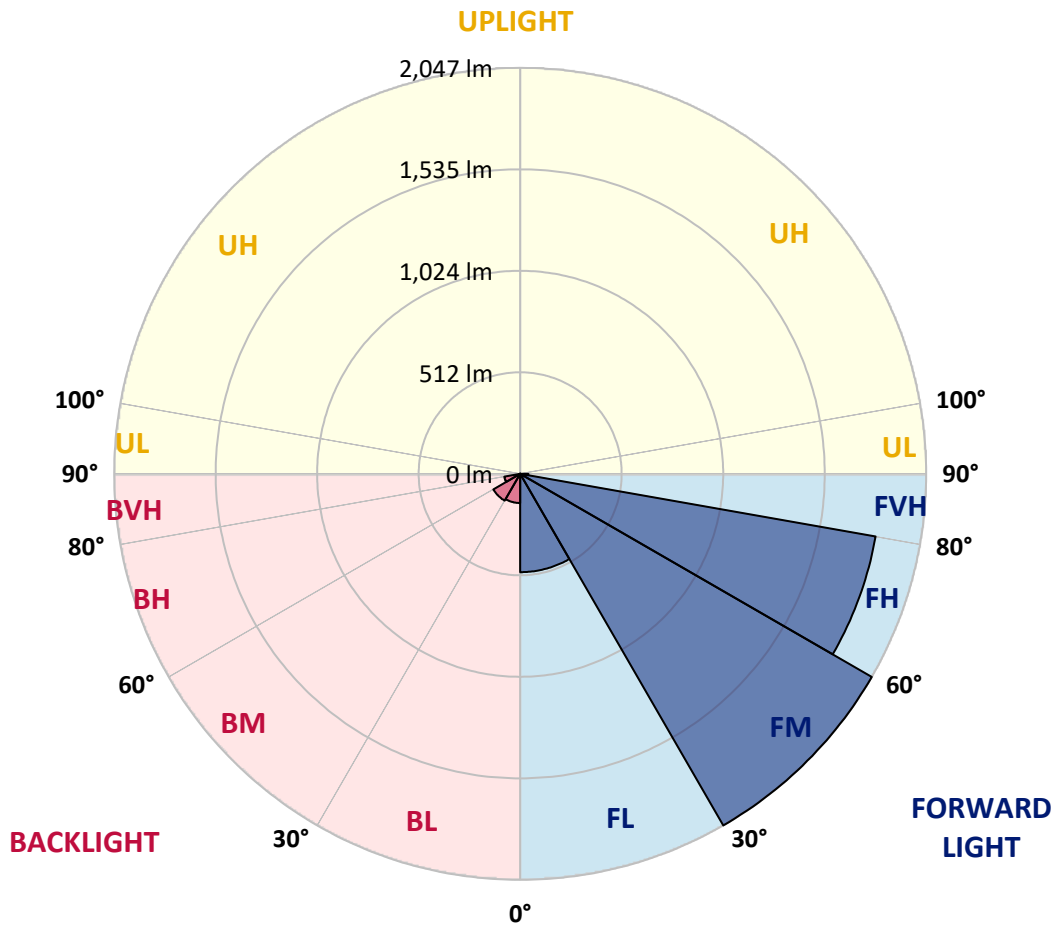
CATALOG NUMBER: ISS-SA1D-750-U-SL3-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 496.0 | 10.4 | | | |
| FM (30°-60°) | 2047.1 | 42.7 | | | |
| FH (60°-80°) | 1819.7 | 38.0 | | | G2/5000 |
| FVH (80°-90°) | 41.0 | 0.9 | | | G1/100 |
| BL (0°-30°) | 147.4 | 3.1 | B1/500 | | |
| BM (30°-60°) | 156.2 | 3.3 | B0/220 | | |
| BH (60°-80°) | 81.3 | 1.7 | B0/110 | | G0/110 |
| BVH (80°-90°) | 1.3 | 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-G2

Type III Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 58° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1348.6 | 1348.6 | 1348.6 | 1348.6 | 1348.6 | 1348.6 | 1348.6 | 1348.6 | 1348.6 | 1348.6 | 1348.6 |
| 2.5° | 1505.3 | 1497.1 | 1493.0 | 1490.9 | 1476.5 | 1464.1 | 1439.4 | 1437.3 | 1420.8 | 1389.9 | 1358.9 |
| 5° | 1472.3 | 1478.5 | 1480.6 | 1486.8 | 1484.7 | 1484.7 | 1468.2 | 1464.1 | 1441.4 | 1398.1 | 1338.3 |
| 7.5° | 1400.2 | 1398.1 | 1402.2 | 1418.7 | 1427.0 | 1443.5 | 1441.4 | 1445.5 | 1435.2 | 1387.8 | 1303.3 |
| 10° | 1295.0 | 1299.1 | 1311.5 | 1325.9 | 1348.6 | 1377.5 | 1396.0 | 1400.2 | 1408.4 | 1369.2 | 1270.3 |
| 12.5° | 1198.1 | 1204.3 | 1212.5 | 1241.4 | 1266.1 | 1311.5 | 1346.6 | 1354.8 | 1371.3 | 1350.7 | 1241.4 |
| 15° | 1117.7 | 1119.7 | 1125.9 | 1152.7 | 1194.0 | 1251.7 | 1303.3 | 1315.6 | 1342.4 | 1334.2 | 1218.7 |
| 17.5° | 1053.7 | 1055.8 | 1064.0 | 1086.7 | 1119.7 | 1187.8 | 1257.9 | 1278.5 | 1317.7 | 1323.9 | 1194.0 |
| 20° | 1018.7 | 1018.7 | 1018.7 | 1033.1 | 1066.1 | 1130.0 | 1212.5 | 1241.4 | 1297.1 | 1307.4 | 1173.3 |
| 22.5° | 1008.4 | 1008.4 | 1004.2 | 1008.4 | 1029.0 | 1082.6 | 1167.2 | 1202.2 | 1272.3 | 1301.2 | 1148.6 |
| 25° | 1022.8 | 1016.6 | 1016.6 | 1006.3 | 1008.4 | 1043.4 | 1125.9 | 1165.1 | 1257.9 | 1297.1 | 1136.2 |
| 27.5° | 1049.6 | 1047.6 | 1039.3 | 1031.1 | 1018.7 | 1026.9 | 1090.9 | 1130.0 | 1243.5 | 1303.3 | 1125.9 |
| 30° | 1080.5 | 1080.5 | 1076.4 | 1072.3 | 1051.7 | 1035.2 | 1074.4 | 1109.4 | 1237.3 | 1313.6 | 1119.7 |
| 32.5° | 1115.6 | 1113.5 | 1123.9 | 1128.0 | 1103.2 | 1072.3 | 1078.5 | 1111.5 | 1241.4 | 1344.5 | 1123.9 |
| 35° | 1156.8 | 1156.8 | 1175.4 | 1200.1 | 1179.5 | 1132.1 | 1117.7 | 1146.5 | 1262.0 | 1377.5 | 1140.3 |
| 37.5° | 1202.2 | 1204.3 | 1237.3 | 1272.3 | 1257.9 | 1216.6 | 1191.9 | 1202.2 | 1305.3 | 1439.4 | 1177.5 |
| 40° | 1255.8 | 1255.8 | 1305.3 | 1363.1 | 1363.1 | 1315.6 | 1282.6 | 1290.9 | 1367.2 | 1528.0 | 1243.5 |
| 42.5° | 1313.6 | 1319.8 | 1389.9 | 1460.0 | 1480.6 | 1437.3 | 1402.2 | 1412.5 | 1466.2 | 1643.5 | 1340.4 |
| 45° | 1396.0 | 1414.6 | 1505.3 | 1573.4 | 1614.6 | 1594.0 | 1548.6 | 1556.9 | 1596.1 | 1810.5 | 1486.8 |
| 47.5° | 1542.5 | 1559.0 | 1637.3 | 1705.4 | 1756.9 | 1767.2 | 1746.6 | 1742.5 | 1759.0 | 2006.4 | 1672.4 |
| 50° | 1717.7 | 1732.2 | 1785.8 | 1843.5 | 1915.7 | 1977.6 | 1965.2 | 1959.0 | 1965.2 | 2220.9 | 1899.2 |
| 52.5° | 1891.0 | 1884.8 | 1948.7 | 1979.6 | 2080.7 | 2216.8 | 2270.4 | 2270.4 | 2237.4 | 2445.7 | 2121.9 |
| 55° | 2045.6 | 2072.4 | 2140.5 | 2196.1 | 2280.7 | 2443.6 | 2625.1 | 2647.8 | 2534.3 | 2668.4 | 2307.5 |
| 57.5° | 2027.1 | 2053.9 | 2179.7 | 2354.9 | 2604.4 | 2825.1 | 3002.4 | 3006.6 | 2841.6 | 2839.5 | 2536.4 |
| 60° | 1810.5 | 1812.6 | 1981.7 | 2247.7 | 2746.7 | 3375.7 | 3478.8 | 3458.2 | 3109.7 | 3078.7 | 2851.9 |
| 62.5° | 1274.4 | 1266.1 | 1484.7 | 1822.9 | 2534.3 | 3676.7 | 4200.5 | 4043.8 | 3555.1 | 3454.0 | 3146.8 |
| 65° | 742.4 | 738.2 | 822.8 | 1088.8 | 1919.8 | 3464.3 | 4938.8 | 4963.5 | 4140.7 | 3645.8 | 3084.9 |
| 67.5° | 499.0 | 503.2 | 542.3 | 672.2 | 1119.7 | 2717.9 | 5074.9 | 5357.4 | 4466.5 | 3546.8 | 2806.5 |
| 70° | 367.1 | 367.1 | 398.0 | 494.9 | 664.0 | 1703.3 | 4433.5 | 4885.1 | 4530.5 | 3299.4 | 2348.7 |
| 72.5° | 261.9 | 261.9 | 305.2 | 400.0 | 542.3 | 878.5 | 3295.3 | 3872.6 | 3825.2 | 2738.5 | 1624.9 |
| 75° | 167.0 | 171.2 | 218.6 | 327.9 | 494.9 | 563.0 | 2235.3 | 2806.5 | 2668.4 | 1532.1 | 692.9 |
| 77.5° | 63.9 | 72.2 | 117.5 | 241.3 | 433.0 | 468.1 | 1274.4 | 1769.3 | 1408.4 | 536.1 | 185.6 |
| 80° | 22.7 | 22.7 | 39.2 | 123.7 | 305.2 | 385.6 | 666.1 | 878.5 | 457.8 | 129.9 | 70.1 |
| 82.5° | 4.1 | 4.1 | 14.4 | 51.6 | 150.5 | 268.1 | 387.7 | 433.0 | 179.4 | 43.3 | 41.2 |
| 85° | 0.0 | 0.0 | 2.1 | 10.3 | 35.1 | 26.8 | 154.7 | 146.4 | 55.7 | 18.6 | 26.8 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 2.1 | 2.1 | 4.1 | 4.1 | 4.1 | 4.1 | 4.1 |
| 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: P437535
 CATALOG NUMBER: ISS-SA1D-750-U-SL3-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1348.6 | 1348.6 | 1348.6 | 1348.6 | 1348.6 | 1348.6 | 1348.6 | 1348.6 | 1348.6 | 1348.6 | 1348.6 |
| 2.5° | 1334.2 | 1317.7 | 1270.3 | 1237.3 | 1191.9 | 1146.5 | 1117.7 | 1095.0 | 1084.7 | 1070.2 | 1076.4 |
| 5° | 1301.2 | 1264.1 | 1177.5 | 1099.1 | 1024.9 | 946.5 | 888.8 | 837.2 | 820.7 | 791.9 | 787.7 |
| 7.5° | 1251.7 | 1200.1 | 1072.3 | 948.6 | 829.0 | 730.0 | 641.3 | 573.3 | 511.4 | 484.6 | 501.1 |
| 10° | 1204.3 | 1134.2 | 967.1 | 802.2 | 643.4 | 505.2 | 400.0 | 317.6 | 270.1 | 249.5 | 253.6 |
| 12.5° | 1158.9 | 1070.2 | 857.8 | 661.9 | 468.1 | 311.4 | 226.8 | 183.5 | 169.1 | 167.0 | 162.9 |
| 15° | 1119.7 | 1010.4 | 760.9 | 513.5 | 311.4 | 195.9 | 160.8 | 150.5 | 148.5 | 148.5 | 148.5 |
| 17.5° | 1076.4 | 948.6 | 655.8 | 377.4 | 204.1 | 152.6 | 142.3 | 140.2 | 138.2 | 138.2 | 138.2 |
| 20° | 1043.4 | 895.0 | 558.8 | 264.0 | 156.7 | 136.1 | 132.0 | 132.0 | 129.9 | 129.9 | 129.9 |
| 22.5° | 1008.4 | 839.3 | 464.0 | 193.8 | 134.0 | 125.8 | 121.7 | 119.6 | 119.6 | 117.5 | 117.5 |
| 25° | 975.4 | 787.7 | 373.2 | 148.5 | 119.6 | 113.4 | 109.3 | 107.2 | 107.2 | 105.2 | 103.1 |
| 27.5° | 954.8 | 746.5 | 292.8 | 125.8 | 107.2 | 103.1 | 99.0 | 94.9 | 90.7 | 88.7 | 88.7 |
| 30° | 940.3 | 697.0 | 222.7 | 109.3 | 99.0 | 92.8 | 86.6 | 80.4 | 74.2 | 72.2 | 72.2 |
| 32.5° | 919.7 | 657.8 | 171.2 | 99.0 | 88.7 | 82.5 | 74.2 | 68.0 | 61.9 | 57.7 | 57.7 |
| 35° | 919.7 | 624.8 | 132.0 | 88.7 | 80.4 | 72.2 | 66.0 | 55.7 | 49.5 | 47.4 | 45.4 |
| 37.5° | 934.1 | 587.7 | 109.3 | 82.5 | 74.2 | 66.0 | 57.7 | 47.4 | 41.2 | 39.2 | 39.2 |
| 40° | 967.1 | 575.3 | 92.8 | 74.2 | 66.0 | 57.7 | 49.5 | 39.2 | 35.1 | 30.9 | 30.9 |
| 42.5° | 1035.2 | 579.5 | 82.5 | 70.1 | 59.8 | 51.6 | 41.2 | 33.0 | 28.9 | 26.8 | 26.8 |
| 45° | 1134.2 | 591.8 | 76.3 | 63.9 | 53.6 | 43.3 | 35.1 | 28.9 | 22.7 | 20.6 | 20.6 |
| 47.5° | 1272.3 | 631.0 | 68.0 | 57.7 | 47.4 | 37.1 | 28.9 | 22.7 | 18.6 | 16.5 | 16.5 |
| 50° | 1437.3 | 699.1 | 63.9 | 51.6 | 43.3 | 30.9 | 22.7 | 16.5 | 12.4 | 12.4 | 12.4 |
| 52.5° | 1631.1 | 767.1 | 57.7 | 47.4 | 37.1 | 26.8 | 18.6 | 12.4 | 10.3 | 8.2 | 8.2 |
| 55° | 1794.0 | 826.9 | 51.6 | 43.3 | 30.9 | 20.6 | 14.4 | 10.3 | 8.2 | 6.2 | 6.2 |
| 57.5° | 2006.4 | 913.5 | 43.3 | 37.1 | 24.7 | 16.5 | 10.3 | 8.2 | 4.1 | 4.1 | 4.1 |
| 60° | 2291.0 | 1016.6 | 37.1 | 30.9 | 18.6 | 12.4 | 8.2 | 4.1 | 4.1 | 2.1 | 2.1 |
| 62.5° | 2412.7 | 934.1 | 33.0 | 24.7 | 14.4 | 8.2 | 6.2 | 4.1 | 2.1 | 2.1 | 2.1 |
| 65° | 2278.6 | 763.0 | 26.8 | 18.6 | 10.3 | 6.2 | 4.1 | 2.1 | 2.1 | 0.0 | 0.0 |
| 67.5° | 1965.2 | 563.0 | 22.7 | 12.4 | 8.2 | 4.1 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| 70° | 1602.3 | 416.5 | 16.5 | 8.2 | 4.1 | 4.1 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| 72.5° | 1109.4 | 251.6 | 12.4 | 6.2 | 4.1 | 2.1 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| 75° | 431.0 | 99.0 | 10.3 | 6.2 | 4.1 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 77.5° | 121.7 | 35.1 | 8.2 | 4.1 | 4.1 | 2.1 | 2.1 | 2.1 | 0.0 | 0.0 | 0.0 |
| 80° | 49.5 | 18.6 | 6.2 | 4.1 | 4.1 | 4.1 | 2.1 | 2.1 | 0.0 | 0.0 | 0.0 |
| 82.5° | 30.9 | 10.3 | 4.1 | 2.1 | 2.1 | 2.1 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 20.6 | 6.2 | 4.1 | 2.1 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 2.1 | 2.1 |
| 87.5° | 4.1 | 4.1 | 2.1 | 2.1 | 2.1 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 2.1 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

LM-79-2008: Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGRAW-EDISON

Report Number: SP1-1908-441-4-R4

Test Date: 10/02/2019

Luminaire Tested: SA1C-750-U-5WQ

Data in this report applies to families of products SA1C-760-U-5WQ .

Test Information

Test Method: LM-79-2008
 Report Number: SP1-1908-441-4-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-750-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): | 4884 | CRI (Ra): | 73.5 | R9: | -28.4 |
| CIE u': | 0.2101 | R1: | 70.5 | R10: | 48.6 |
| CIE v': | 0.4904 | R2: | 77.7 | R11: | 73.2 |
| Duv: | 0.0037 | R3: | 84.6 | R12: | 50.7 |
| CIE x: | 0.3493 | R4: | 74.7 | R13: | 71.2 |
| CIE y: | 0.3624 | R5: | 71.9 | R14: | 91.4 |
| CIE z: | 0.2884 | R6: | 70.7 | | |
| Peak Wavelength (nm): | 444 | R7: | 81.2 | | |
| Dominant Wavelength (nm): | 571 | R8: | 56.9 | | |
| Purity: | 13.7 | | | | |
| Rf: | 74.9 | | | | |
| Rg: | 96.3 | | | | |



Test Conditions

Stabilization Time: 240M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.0./44%
 Sphere Temperature (°C): 25.7

REPORT NUMBER: SP1-1908-441-4-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 5000K 4-step quadrangle

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Photopic Flux vs. Wavelength

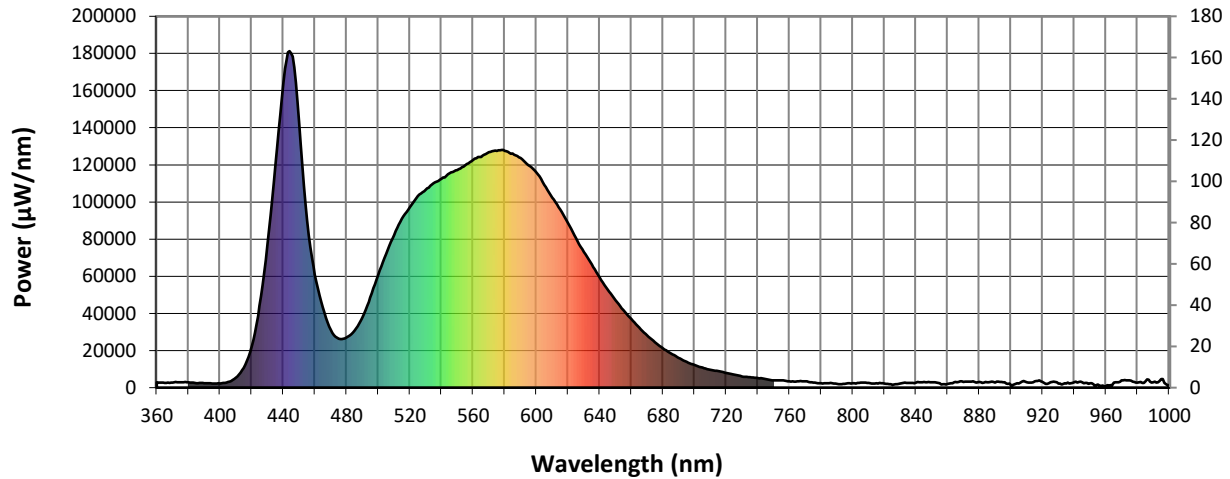


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| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 2945 | NR | 490 | 37941 | NR | 620 | 88803 | NR | 750 | 3908 | NR | 880 | 2997 | NR |
| 365 | 2596 | NR | 495 | 48525 | NR | 625 | 80578 | NR | 755 | 3988 | NR | 885 | 2927 | NR |
| 370 | 2732 | NR | 500 | 60609 | NR | 630 | 73127 | NR | 760 | 3335 | NR | 890 | 2649 | NR |
| 375 | 2894 | NR | 505 | 72036 | NR | 635 | 66244 | NR | 765 | 3438 | NR | 895 | 2828 | NR |
| 380 | 2822 | NR | 510 | 82168 | NR | 640 | 59440 | NR | 770 | 3427 | NR | 900 | 1407 | NR |
| 385 | 2394 | NR | 515 | 90898 | NR | 645 | 52864 | NR | 775 | 2759 | NR | 905 | 2224 | NR |
| 390 | 2370 | NR | 520 | 97142 | NR | 650 | 47085 | NR | 780 | 2340 | NR | 910 | 2905 | NR |
| 395 | 2267 | NR | 525 | 103255 | NR | 655 | 41789 | NR | 785 | 2412 | NR | 915 | 3350 | NR |
| 400 | 2262 | NR | 530 | 106697 | NR | 660 | 37064 | NR | 790 | 1999 | NR | 920 | 3114 | NR |
| 405 | 3000 | NR | 535 | 110081 | NR | 665 | 32299 | NR | 795 | 2054 | NR | 925 | 2834 | NR |
| 410 | 5324 | NR | 540 | 112494 | NR | 670 | 28142 | NR | 800 | 2331 | NR | 930 | 2271 | NR |
| 415 | 10725 | NR | 545 | 115513 | NR | 675 | 24505 | NR | 805 | 2648 | NR | 935 | 2228 | NR |
| 420 | 22128 | NR | 550 | 117203 | NR | 680 | 21162 | NR | 810 | 2485 | NR | 940 | 2833 | NR |
| 425 | 44095 | NR | 555 | 119753 | NR | 685 | 18400 | NR | 815 | 2409 | NR | 945 | 2941 | NR |
| 430 | 77002 | NR | 560 | 122602 | NR | 690 | 16065 | NR | 820 | 2221 | NR | 950 | 2323 | NR |
| 435 | 119881 | NR | 565 | 124314 | NR | 695 | 13860 | NR | 825 | 1562 | NR | 955 | 1667 | NR |
| 440 | 164454 | NR | 570 | 126775 | NR | 700 | 12177 | NR | 830 | 2249 | NR | 960 | 749 | NR |
| 445 | 179997 | NR | 575 | 127511 | NR | 705 | 10757 | NR | 835 | 2573 | NR | 965 | 2669 | NR |
| 450 | 142822 | NR | 580 | 127577 | NR | 710 | 9601 | NR | 840 | 2764 | NR | 970 | 3968 | NR |
| 455 | 90008 | NR | 585 | 126153 | NR | 715 | 8944 | NR | 845 | 3109 | NR | 975 | 3886 | NR |
| 460 | 60557 | NR | 590 | 123678 | NR | 720 | 7947 | NR | 850 | 2963 | NR | 980 | 2788 | NR |
| 465 | 43305 | NR | 595 | 119774 | NR | 725 | 7062 | NR | 855 | 2336 | NR | 985 | 3496 | NR |
| 470 | 31089 | NR | 600 | 115733 | NR | 730 | 6004 | NR | 860 | 2118 | NR | 990 | 2913 | NR |
| 475 | 26278 | NR | 605 | 109231 | NR | 735 | 5594 | NR | 865 | 3144 | NR | 995 | 4659 | NR |
| 480 | 27060 | NR | 610 | 102408 | NR | 740 | 5165 | NR | 870 | 3069 | NR | 1000 | 1308 | NR |
| 485 | 30698 | NR | 615 | 96015 | NR | 745 | 4687 | NR | 875 | 3311 | NR | | | |

REPORT NUMBER: SP1-1908-441-4-R4

Scotopic Flux vs. Wavelength



Scotopic Lumens: 13493.5 S/P: 1.77

| 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 | 2945 | NR | 490 | 37941 | NR | 620 | 88803 | NR | 750 | 3908 | NR | 880 | 2997 | NR |
| 365 | 2596 | NR | 495 | 48525 | NR | 625 | 80578 | NR | 755 | 3988 | NR | 885 | 2927 | NR |
| 370 | 2732 | NR | 500 | 60609 | NR | 630 | 73127 | NR | 760 | 3335 | NR | 890 | 2649 | NR |
| 375 | 2894 | NR | 505 | 72036 | NR | 635 | 66244 | NR | 765 | 3438 | NR | 895 | 2828 | NR |
| 380 | 2822 | NR | 510 | 82168 | NR | 640 | 59440 | NR | 770 | 3427 | NR | 900 | 1407 | NR |
| 385 | 2394 | NR | 515 | 90898 | NR | 645 | 52864 | NR | 775 | 2759 | NR | 905 | 2224 | NR |
| 390 | 2370 | NR | 520 | 97142 | NR | 650 | 47085 | NR | 780 | 2340 | NR | 910 | 2905 | NR |
| 395 | 2267 | NR | 525 | 103255 | NR | 655 | 41789 | NR | 785 | 2412 | NR | 915 | 3350 | NR |
| 400 | 2262 | NR | 530 | 106697 | NR | 660 | 37064 | NR | 790 | 1999 | NR | 920 | 3114 | NR |
| 405 | 3000 | NR | 535 | 110081 | NR | 665 | 32299 | NR | 795 | 2054 | NR | 925 | 2834 | NR |
| 410 | 5324 | NR | 540 | 112494 | NR | 670 | 28142 | NR | 800 | 2331 | NR | 930 | 2271 | NR |
| 415 | 10725 | NR | 545 | 115513 | NR | 675 | 24505 | NR | 805 | 2648 | NR | 935 | 2228 | NR |
| 420 | 22128 | NR | 550 | 117203 | NR | 680 | 21162 | NR | 810 | 2485 | NR | 940 | 2833 | NR |
| 425 | 44095 | NR | 555 | 119753 | NR | 685 | 18400 | NR | 815 | 2409 | NR | 945 | 2941 | NR |
| 430 | 77002 | NR | 560 | 122602 | NR | 690 | 16065 | NR | 820 | 2221 | NR | 950 | 2323 | NR |
| 435 | 119881 | NR | 565 | 124314 | NR | 695 | 13860 | NR | 825 | 1562 | NR | 955 | 1667 | NR |
| 440 | 164454 | NR | 570 | 126775 | NR | 700 | 12177 | NR | 830 | 2249 | NR | 960 | 749 | NR |
| 445 | 179997 | NR | 575 | 127511 | NR | 705 | 10757 | NR | 835 | 2573 | NR | 965 | 2669 | NR |
| 450 | 142822 | NR | 580 | 127577 | NR | 710 | 9601 | NR | 840 | 2764 | NR | 970 | 3968 | NR |
| 455 | 90008 | NR | 585 | 126153 | NR | 715 | 8944 | NR | 845 | 3109 | NR | 975 | 3886 | NR |
| 460 | 60557 | NR | 590 | 123678 | NR | 720 | 7947 | NR | 850 | 2963 | NR | 980 | 2788 | NR |
| 465 | 43305 | NR | 595 | 119774 | NR | 725 | 7062 | NR | 855 | 2336 | NR | 985 | 3496 | NR |
| 470 | 31089 | NR | 600 | 115733 | NR | 730 | 6004 | NR | 860 | 2118 | NR | 990 | 2913 | NR |
| 475 | 26278 | NR | 605 | 109231 | NR | 735 | 5594 | NR | 865 | 3144 | NR | 995 | 4659 | NR |
| 480 | 27060 | NR | 610 | 102408 | NR | 740 | 5165 | NR | 870 | 3069 | NR | 1000 | 1308 | NR |
| 485 | 30698 | NR | 615 | 96015 | NR | 745 | 4687 | NR | 875 | 3311 | NR | | | |

REPORT NUMBER: SP1-1908-441-4-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 5378.9 M/P: 0.71

| 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 | 2945 | NR | 490 | 37941 | NR | 620 | 88803 | NR | 750 | 3908 | NR | 880 | 2997 | NR |
| 365 | 2596 | NR | 495 | 48525 | NR | 625 | 80578 | NR | 755 | 3988 | NR | 885 | 2927 | NR |
| 370 | 2732 | NR | 500 | 60609 | NR | 630 | 73127 | NR | 760 | 3335 | NR | 890 | 2649 | NR |
| 375 | 2894 | NR | 505 | 72036 | NR | 635 | 66244 | NR | 765 | 3438 | NR | 895 | 2828 | NR |
| 380 | 2822 | NR | 510 | 82168 | NR | 640 | 59440 | NR | 770 | 3427 | NR | 900 | 1407 | NR |
| 385 | 2394 | NR | 515 | 90898 | NR | 645 | 52864 | NR | 775 | 2759 | NR | 905 | 2224 | NR |
| 390 | 2370 | NR | 520 | 97142 | NR | 650 | 47085 | NR | 780 | 2340 | NR | 910 | 2905 | NR |
| 395 | 2267 | NR | 525 | 103255 | NR | 655 | 41789 | NR | 785 | 2412 | NR | 915 | 3350 | NR |
| 400 | 2262 | NR | 530 | 106697 | NR | 660 | 37064 | NR | 790 | 1999 | NR | 920 | 3114 | NR |
| 405 | 3000 | NR | 535 | 110081 | NR | 665 | 32299 | NR | 795 | 2054 | NR | 925 | 2834 | NR |
| 410 | 5324 | NR | 540 | 112494 | NR | 670 | 28142 | NR | 800 | 2331 | NR | 930 | 2271 | NR |
| 415 | 10725 | NR | 545 | 115513 | NR | 675 | 24505 | NR | 805 | 2648 | NR | 935 | 2228 | NR |
| 420 | 22128 | NR | 550 | 117203 | NR | 680 | 21162 | NR | 810 | 2485 | NR | 940 | 2833 | NR |
| 425 | 44095 | NR | 555 | 119753 | NR | 685 | 18400 | NR | 815 | 2409 | NR | 945 | 2941 | NR |
| 430 | 77002 | NR | 560 | 122602 | NR | 690 | 16065 | NR | 820 | 2221 | NR | 950 | 2323 | NR |
| 435 | 119881 | NR | 565 | 124314 | NR | 695 | 13860 | NR | 825 | 1562 | NR | 955 | 1667 | NR |
| 440 | 164454 | NR | 570 | 126775 | NR | 700 | 12177 | NR | 830 | 2249 | NR | 960 | 749 | NR |
| 445 | 179997 | NR | 575 | 127511 | NR | 705 | 10757 | NR | 835 | 2573 | NR | 965 | 2669 | NR |
| 450 | 142822 | NR | 580 | 127577 | NR | 710 | 9601 | NR | 840 | 2764 | NR | 970 | 3968 | NR |
| 455 | 90008 | NR | 585 | 126153 | NR | 715 | 8944 | NR | 845 | 3109 | NR | 975 | 3886 | NR |
| 460 | 60557 | NR | 590 | 123678 | NR | 720 | 7947 | NR | 850 | 2963 | NR | 980 | 2788 | NR |
| 465 | 43305 | NR | 595 | 119774 | NR | 725 | 7062 | NR | 855 | 2336 | NR | 985 | 3496 | NR |
| 470 | 31089 | NR | 600 | 115733 | NR | 730 | 6004 | NR | 860 | 2118 | NR | 990 | 2913 | NR |
| 475 | 26278 | NR | 605 | 109231 | NR | 735 | 5594 | NR | 865 | 3144 | NR | 995 | 4659 | NR |
| 480 | 27060 | NR | 610 | 102408 | NR | 740 | 5165 | NR | 870 | 3069 | NR | 1000 | 1308 | NR |
| 485 | 30698 | NR | 615 | 96015 | NR | 745 | 4687 | NR | 875 | 3311 | NR | | | |

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TM-30-18

Summary

$R_f = 74.9$
 $R_g = 96.3$
 CIE $R_a = 73.5$
 $R_g = -28.4$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 61 | CES51 = 90 | CES76 = 52 |
| CES02 = 60 | CES27 = 84 | CES52 = 91 | CES77 = 71 |
| CES03 = 30 | CES28 = 81 | CES53 = 79 | CES78 = 54 |
| CES04 = 69 | CES29 = 58 | CES54 = 83 | CES79 = 80 |
| CES05 = 46 | CES30 = 67 | CES55 = 83 | CES80 = 77 |
| CES06 = 50 | CES31 = 63 | CES56 = 73 | CES81 = 77 |
| CES07 = 39 | CES32 = 59 | CES57 = 72 | CES82 = 90 |
| CES08 = 38 | CES33 = 69 | CES58 = 73 | CES83 = 86 |
| CES09 = 29 | CES34 = 69 | CES59 = 88 | CES84 = 88 |
| CES10 = 73 | CES35 = 83 | CES60 = 93 | CES85 = 84 |
| CES11 = 56 | CES36 = 95 | CES61 = 88 | CES86 = 75 |
| CES12 = 61 | CES37 = 78 | CES62 = 85 | CES87 = 78 |
| CES13 = 41 | CES38 = 76 | CES63 = 77 | CES88 = 79 |
| CES14 = 74 | CES39 = 93 | CES64 = 74 | CES89 = 75 |
| CES15 = 70 | CES40 = 86 | CES65 = 67 | CES90 = 77 |
| CES16 = 46 | CES41 = 87 | CES66 = 69 | CES91 = 89 |
| CES17 = 49 | CES42 = 78 | CES67 = 67 | CES92 = 66 |
| CES18 = 55 | CES43 = 75 | CES68 = 73 | CES93 = 80 |
| CES19 = 71 | CES44 = 99 | CES69 = 81 | CES94 = 57 |
| CES20 = 64 | CES45 = 83 | CES70 = 63 | CES95 = 71 |
| CES21 = 85 | CES46 = 81 | CES71 = 60 | CES96 = 78 |
| CES22 = 77 | CES47 = 80 | CES72 = 86 | CES97 = 85 |
| CES23 = 91 | CES48 = 72 | CES73 = 53 | CES98 = 75 |
| CES24 = 90 | CES49 = 81 | CES74 = 96 | CES99 = 62 |
| CES25 = 71 | CES50 = 89 | CES75 = 58 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)