

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: P323413

Luminaire Tested: **GLEON-SA9C-722-U-SL2-HSS**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P323413
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-21)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: GLEON-SA9C-722-U-SL2-HSS
Description: GALLEON AREA AND ROADWAY LUMINAIRE
(9) 70 CRI, 2200K, 1050mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II
SPILL LIGHT ELIMINATOR OPTICS WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 38503 lumens
Efficiency: N/A
Efficacy: 76.9 lumens/watt
Luminous Opening: Rectangular (W 2.5' x L: 1' x H: 0')
IES Classification: Type III - Medium
BUG Rating: B3 - U0 - G5

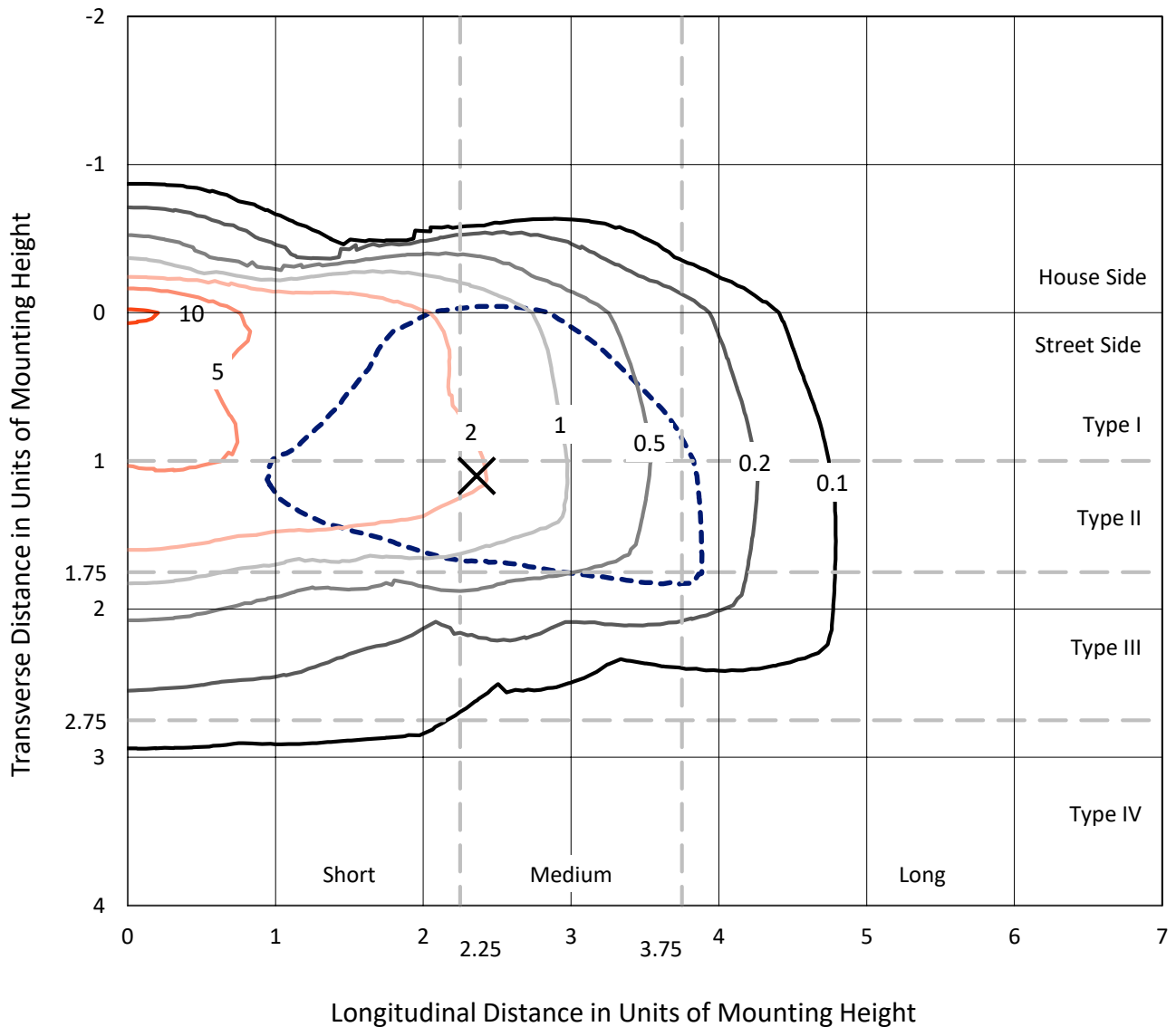
Input Watts (W): 501
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



REPORT NUMBER: P323413
 CATALOG NUMBER: GLEON-SA9C-722-U-SL2-HSS

Iso-Footcandle Lines of Horizontal Illumination

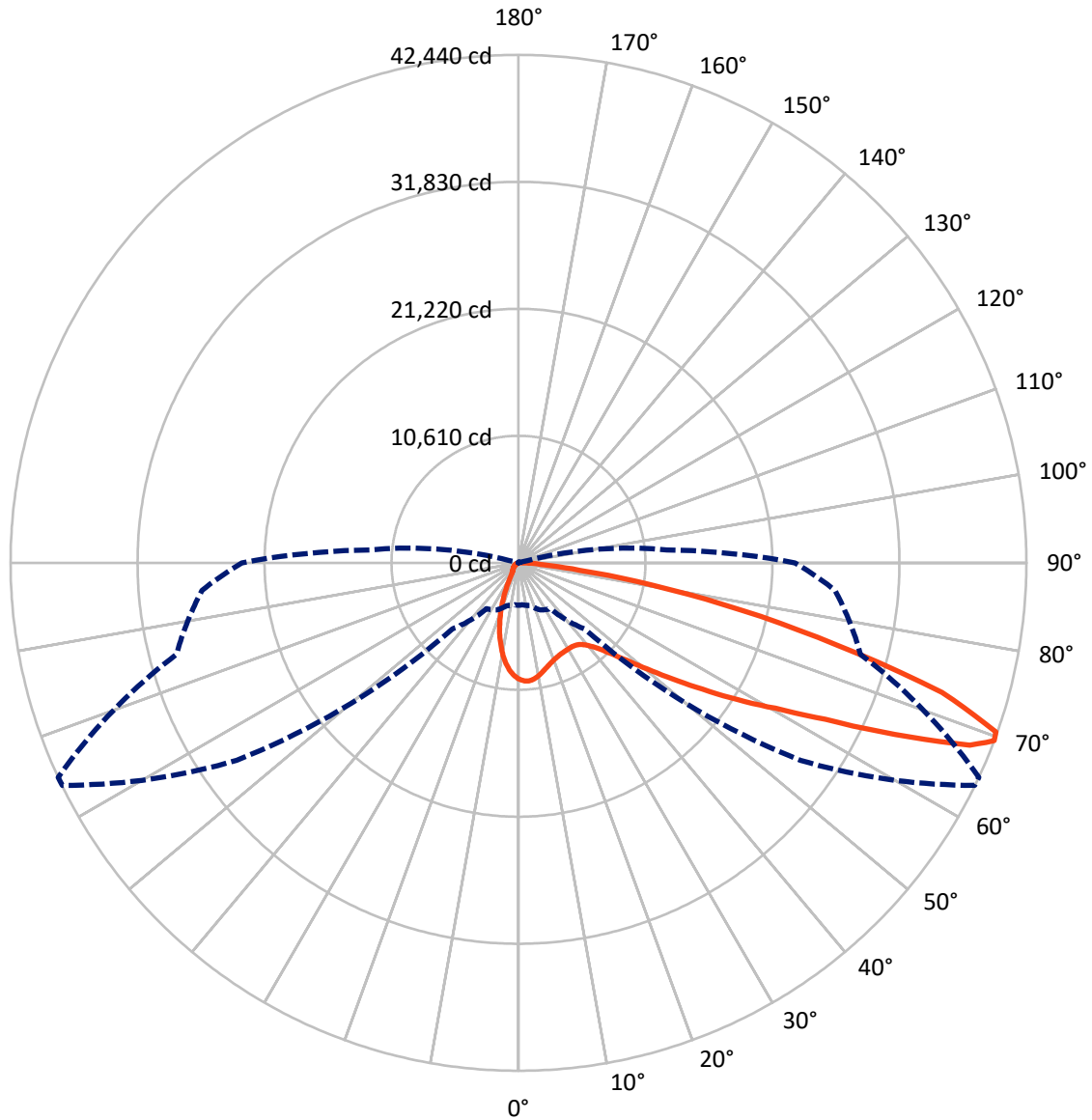
✕ Max cd
 - - - 1/2 Max cd



Based on 30 foot mounting height. Maximum calculated value = 10.8 fc
 Type III - Medium - N/A

REPORT NUMBER: P323413
CATALOG NUMBER: GLEON-SA9C-722-U-SL2-HSS

Luminous Intensity Polar Plot



— Vertical Plane Through 65-Deg Lateral - - - Horizontal Cone Through 69-Deg Vertical

REPORT NUMBER: P323413
 CATALOG NUMBER: GLEON-SA9C-722-U-SL2-HSS

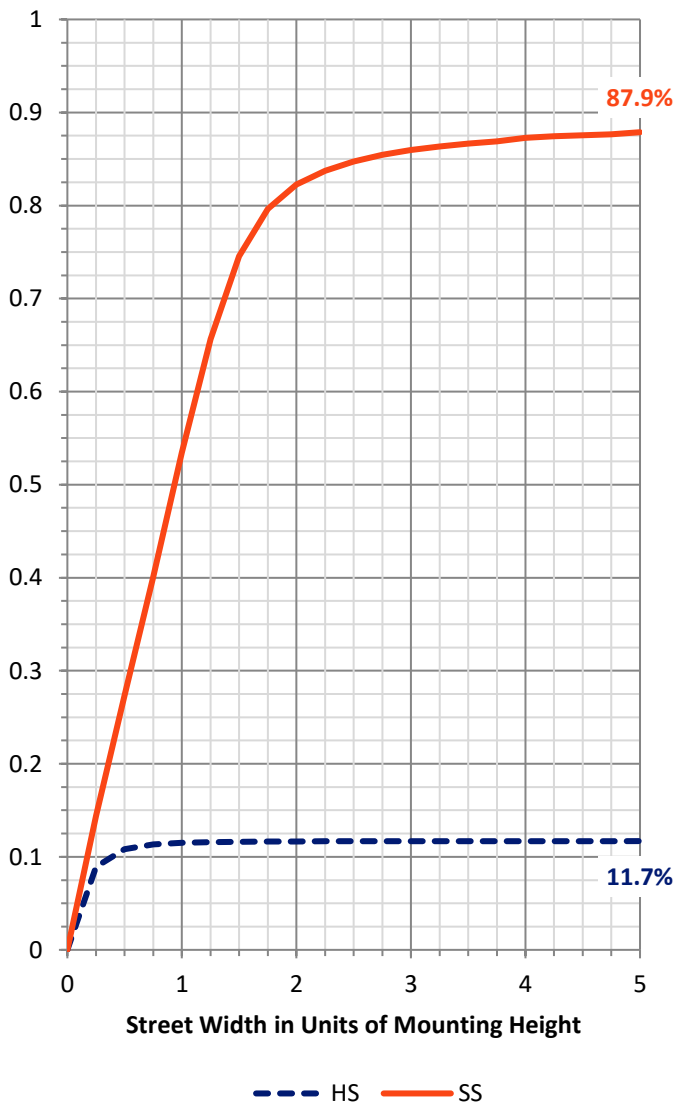
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 4538.6 | 0.0 | 4538.6 |
| | % Fixture | 11.8 | 0.0 | 11.8 |
| Street Side | Lumens | 33964.4 | 0.0 | 33964.4 |
| | % Fixture | 88.2 | 0.0 | 88.2 |
| Total | Lumens | 38503.0 | 0.0 | 38503.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 813.6 | 2.1 |
| 10°-20° | 1781.0 | 4.6 |
| 20°-30° | 2466.8 | 6.4 |
| 30°-40° | 3439.5 | 8.9 |
| 40°-50° | 5346.1 | 13.9 |
| 50°-60° | 8582.6 | 22.3 |
| 60°-70° | 9708.3 | 25.2 |
| 70°-80° | 5701.8 | 14.8 |
| 80°-90° | 663.3 | 1.7 |
| 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° | 38503.0 | 100.0 |
| 0°-180° | 38503.0 | 100.0 |

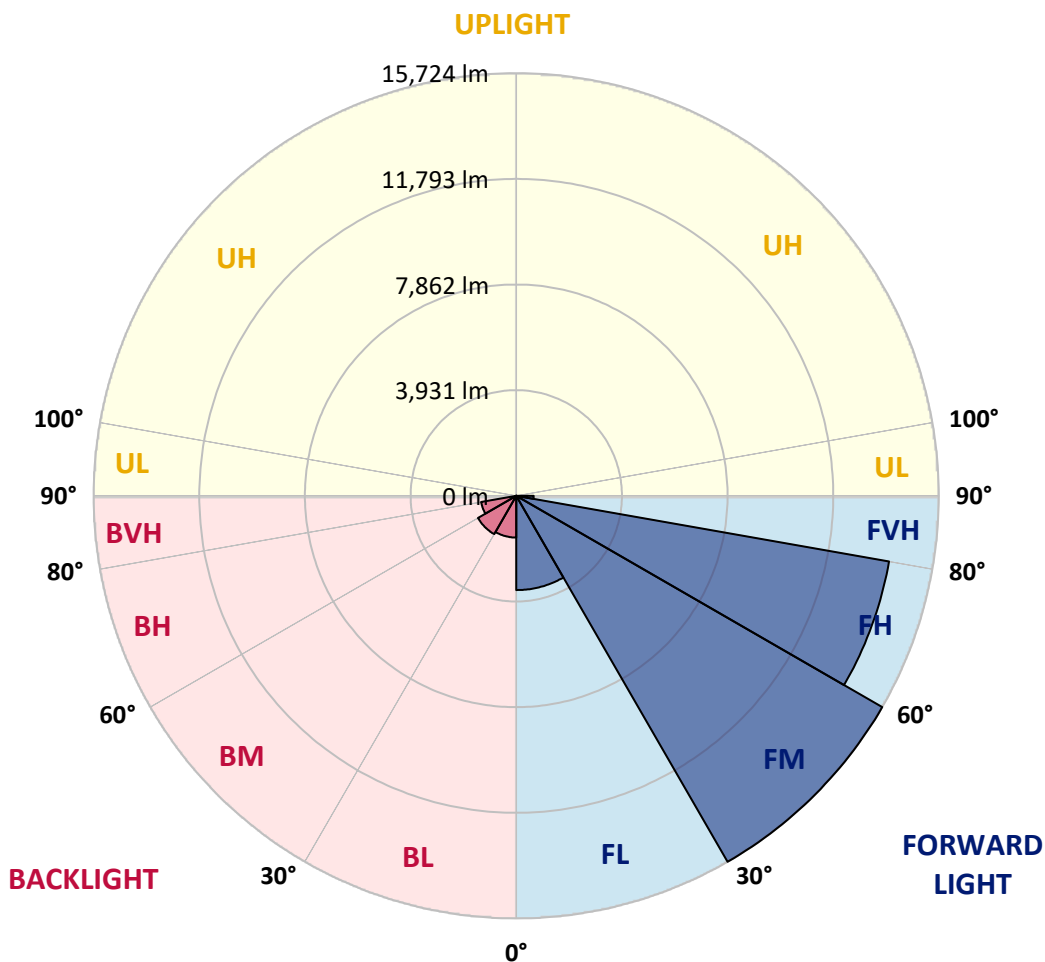


REPORT NUMBER: P323413
 CATALOG NUMBER: GLEON-SA9C-722-U-SL2-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|---------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 3508.5 | 9.1 | | | |
| FM (30°-60°) | 15723.5 | 40.8 | | | |
| FH (60°-80°) | 14084.0 | 36.6 | | | G5 |
| FVH (80°-90°) | 648.3 | 1.7 | | | G4/750 |
| BL (0°-30°) | 1552.9 | 4.0 | B3/2500 | | |
| BM (30°-60°) | 1644.7 | 4.3 | B2/2500 | | |
| BH (60°-80°) | 1326.1 | 3.4 | B3/2500 | | G3/2500 |
| BVH (80°-90°) | 14.9 | 0.0 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B3-U0-G5
 Type III Medium





REPORT NUMBER: P323413
 CATALOG NUMBER: GLEON-SA9C-722-U-SL2-HSS

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 64° | 65° | 75° | 85° |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0° | 9729.8 | 9729.8 | 9729.8 | 9729.8 | 9729.8 | 9729.8 | 9729.8 | 9729.8 | 9729.8 | 9729.8 | 9729.8 |
| 2.5° | 9816.1 | 9791.7 | 9811.2 | 9853.6 | 9874.8 | 9874.8 | 9891.1 | 9871.5 | 9878.0 | 9830.8 | 9762.4 |
| 5° | 9201.9 | 9164.4 | 9218.2 | 9337.1 | 9483.8 | 9609.2 | 9794.9 | 9892.7 | 9902.5 | 9904.1 | 9824.3 |
| 7.5° | 8540.4 | 8506.2 | 8586.1 | 8726.2 | 8915.2 | 9148.1 | 9472.4 | 9755.8 | 9772.1 | 9925.3 | 9866.6 |
| 10° | 8002.8 | 7978.4 | 8071.2 | 8221.1 | 8442.7 | 8703.4 | 9100.9 | 9495.2 | 9542.4 | 9881.3 | 9860.1 |
| 12.5° | 7575.9 | 7556.4 | 7644.4 | 7817.1 | 8043.5 | 8331.9 | 8747.3 | 9205.2 | 9268.7 | 9781.9 | 9827.5 |
| 15° | 7264.7 | 7261.5 | 7334.8 | 7501.0 | 7751.9 | 8020.7 | 8445.9 | 8936.3 | 9009.7 | 9674.4 | 9822.6 |
| 17.5° | 7101.8 | 7106.7 | 7160.5 | 7302.2 | 7517.3 | 7784.5 | 8191.8 | 8709.9 | 8789.7 | 9578.3 | 9847.1 |
| 20° | 7085.5 | 7090.4 | 7119.7 | 7199.6 | 7373.9 | 7610.1 | 7984.9 | 8519.3 | 8602.3 | 9506.6 | 9886.2 |
| 22.5° | 7228.9 | 7225.6 | 7233.8 | 7225.6 | 7323.4 | 7502.6 | 7848.0 | 8372.6 | 8468.7 | 9459.3 | 9917.1 |
| 25° | 7504.2 | 7499.4 | 7496.1 | 7435.8 | 7370.6 | 7466.8 | 7791.0 | 8289.5 | 8380.8 | 9425.1 | 9935.1 |
| 27.5° | 7887.1 | 7883.9 | 7879.0 | 7779.6 | 7584.1 | 7523.8 | 7797.5 | 8258.6 | 8335.2 | 9397.4 | 9931.8 |
| 30° | 8390.5 | 8413.4 | 8406.8 | 8268.4 | 7963.7 | 7698.1 | 7865.9 | 8242.3 | 8309.1 | 9343.6 | 9897.6 |
| 32.5° | 8982.0 | 9027.6 | 9063.4 | 8915.2 | 8533.9 | 8043.5 | 8024.0 | 8260.2 | 8309.1 | 9302.9 | 9835.7 |
| 35° | 9596.2 | 9654.8 | 9786.8 | 9734.7 | 9232.9 | 8563.2 | 8296.1 | 8367.7 | 8408.5 | 9325.7 | 9806.3 |
| 37.5° | 10200.6 | 10270.7 | 10557.4 | 10708.9 | 10148.5 | 9250.8 | 8719.7 | 8633.3 | 8654.5 | 9464.2 | 9838.9 |
| 40° | 10902.8 | 11008.7 | 11443.7 | 11688.1 | 11241.7 | 10171.3 | 9353.4 | 9089.5 | 9097.6 | 9768.9 | 9990.5 |
| 42.5° | 11825.0 | 11934.1 | 12405.0 | 12787.8 | 12473.4 | 11334.6 | 10213.7 | 9786.8 | 9778.7 | 10339.1 | 10347.3 |
| 45° | 12949.1 | 13063.2 | 13550.3 | 13975.6 | 13833.8 | 12712.9 | 11315.0 | 10805.1 | 10795.3 | 11238.4 | 11023.4 |
| 47.5° | 14223.2 | 14335.6 | 14770.6 | 15208.9 | 15362.0 | 14322.6 | 12717.8 | 12194.8 | 12172.0 | 12488.1 | 12067.7 |
| 50° | 15316.4 | 15389.7 | 15790.5 | 16380.3 | 17071.1 | 16300.5 | 14462.7 | 13959.3 | 13934.8 | 14148.3 | 13600.8 |
| 52.5° | 15713.9 | 15756.3 | 16163.6 | 16989.6 | 18713.4 | 18978.9 | 16755.0 | 16106.6 | 16088.7 | 16181.5 | 15642.3 |
| 55° | 14909.1 | 14985.7 | 15485.9 | 16711.0 | 19602.9 | 22006.0 | 19648.5 | 18765.5 | 18630.3 | 18429.9 | 17776.6 |
| 57.5° | 12716.2 | 12838.4 | 13376.0 | 15005.2 | 19187.5 | 24407.5 | 23900.8 | 21773.1 | 21574.3 | 20349.1 | 19511.7 |
| 60° | 9527.8 | 9677.6 | 10124.0 | 11882.0 | 16970.1 | 25262.9 | 28547.4 | 25124.4 | 24676.4 | 21877.3 | 21106.7 |
| 62.5° | 6538.1 | 6613.1 | 6916.1 | 8061.4 | 12497.8 | 23861.7 | 32434.8 | 29612.9 | 28795.1 | 23539.1 | 22832.1 |
| 65° | 4993.6 | 5019.7 | 5143.5 | 5537.8 | 7442.3 | 19383.0 | 33980.9 | 35535.2 | 34546.2 | 25526.8 | 24622.6 |
| 67.5° | 4024.2 | 4003.0 | 4174.1 | 4737.8 | 4983.8 | 11825.0 | 32177.3 | 41138.1 | 40675.4 | 28184.1 | 26424.5 |
| 69° | 3548.5 | 3519.1 | 3693.5 | 4348.4 | 4680.8 | 7817.1 | 28765.7 | 42410.5 | 42439.9 | 29586.9 | 26548.3 |
| 70° | 3193.3 | 3212.8 | 3385.5 | 4117.1 | 4578.1 | 6135.7 | 25507.3 | 42086.3 | 42317.7 | 30111.5 | 25805.4 |
| 72.5° | 2132.7 | 2184.8 | 2531.8 | 3418.1 | 4402.2 | 4643.3 | 15401.1 | 36115.2 | 37004.8 | 28930.3 | 22139.6 |
| 75° | 1202.4 | 1241.5 | 1653.7 | 2577.4 | 4148.0 | 4421.7 | 8134.8 | 26607.0 | 27467.2 | 24192.5 | 17072.7 |
| 77.5° | 589.8 | 611.0 | 935.2 | 1663.4 | 3468.6 | 4213.2 | 4614.0 | 18073.1 | 19055.5 | 15790.5 | 9656.5 |
| 80° | 249.3 | 260.7 | 467.6 | 1026.4 | 2479.7 | 4020.9 | 3426.3 | 11122.8 | 11245.0 | 6186.2 | 2572.6 |
| 82.5° | 96.1 | 99.4 | 197.1 | 640.3 | 1575.5 | 3134.6 | 2865.8 | 5273.8 | 5146.7 | 1164.9 | 586.5 |
| 85° | 11.4 | 13.0 | 71.7 | 384.5 | 876.5 | 1612.9 | 2328.2 | 2272.8 | 2103.3 | 231.4 | 301.4 |
| 87.5° | 0.0 | 0.0 | 4.9 | 117.3 | 260.7 | 756.0 | 1210.5 | 943.3 | 850.5 | 74.9 | 156.4 |
| 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: P323413

CATALOG NUMBER: GLEON-SA9C-722-U-SL2-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 9729.8 | 9729.8 | 9729.8 | 9729.8 | 9729.8 | 9729.8 | 9729.8 | 9729.8 | 9729.8 | 9729.8 | 9729.8 |
| 2.5° | 9705.3 | 9689.0 | 9601.1 | 9474.0 | 9353.4 | 9203.5 | 9060.2 | 8973.8 | 8905.4 | 8859.8 | 8913.5 |
| 5° | 9731.4 | 9659.7 | 9392.5 | 9050.4 | 8714.8 | 8336.8 | 7984.9 | 7686.7 | 7569.4 | 7439.1 | 7497.7 |
| 7.5° | 9723.3 | 9588.0 | 9107.4 | 8498.1 | 7882.2 | 7245.2 | 6642.4 | 6178.0 | 5936.9 | 5700.7 | 5761.0 |
| 10° | 9682.5 | 9454.4 | 8726.2 | 7823.6 | 6901.4 | 5985.8 | 5130.5 | 4480.4 | 4117.1 | 3788.0 | 3835.2 |
| 12.5° | 9592.9 | 9275.2 | 8276.5 | 7051.3 | 5818.0 | 4610.7 | 3608.7 | 2776.2 | 2329.8 | 2132.7 | 2157.1 |
| 15° | 9539.2 | 9100.9 | 7800.8 | 6269.3 | 4661.2 | 3211.2 | 2206.0 | 1640.6 | 1437.0 | 1371.8 | 1380.0 |
| 17.5° | 9513.1 | 8933.1 | 7308.7 | 5374.8 | 3478.4 | 2044.7 | 1425.6 | 1257.8 | 1213.8 | 1202.4 | 1205.6 |
| 20° | 9487.0 | 8763.6 | 6802.0 | 4490.2 | 2396.6 | 1375.1 | 1171.4 | 1122.5 | 1106.2 | 1091.6 | 1094.8 |
| 22.5° | 9443.0 | 8600.7 | 6257.9 | 3594.1 | 1616.2 | 1116.0 | 1055.7 | 1008.5 | 974.3 | 956.4 | 959.6 |
| 25° | 9389.3 | 8429.6 | 5702.3 | 2676.8 | 1179.6 | 995.5 | 938.4 | 871.6 | 830.9 | 798.3 | 800.0 |
| 27.5° | 9302.9 | 8219.5 | 5128.8 | 1948.6 | 990.6 | 891.2 | 814.6 | 741.3 | 672.9 | 635.4 | 635.4 |
| 30° | 9182.4 | 7981.6 | 4491.8 | 1394.6 | 887.9 | 788.5 | 695.7 | 604.4 | 531.1 | 496.9 | 493.7 |
| 32.5° | 9048.8 | 7734.0 | 3848.2 | 1057.4 | 806.5 | 692.4 | 586.5 | 490.4 | 425.2 | 397.5 | 395.9 |
| 35° | 8934.7 | 7466.8 | 3206.3 | 886.3 | 725.0 | 599.6 | 483.9 | 402.4 | 350.3 | 327.5 | 325.8 |
| 37.5° | 8861.4 | 7199.6 | 2580.7 | 791.8 | 651.7 | 513.2 | 405.7 | 332.4 | 294.9 | 277.0 | 275.3 |
| 40° | 8850.0 | 7000.8 | 2008.8 | 720.1 | 583.3 | 436.6 | 338.9 | 281.9 | 247.6 | 228.1 | 226.5 |
| 42.5° | 8998.3 | 6886.8 | 1541.3 | 659.8 | 513.2 | 369.8 | 288.4 | 241.1 | 205.3 | 185.7 | 184.1 |
| 45° | 9387.6 | 6922.6 | 1186.1 | 606.1 | 443.2 | 312.8 | 244.4 | 200.4 | 167.8 | 153.1 | 149.9 |
| 47.5° | 10098.0 | 7170.3 | 943.3 | 552.3 | 376.4 | 265.6 | 208.5 | 166.2 | 138.5 | 123.8 | 122.2 |
| 50° | 11362.3 | 7751.9 | 788.5 | 493.7 | 314.4 | 226.5 | 172.7 | 135.2 | 112.4 | 99.4 | 97.8 |
| 52.5° | 13040.4 | 8788.1 | 703.8 | 436.6 | 260.7 | 192.2 | 141.7 | 107.5 | 88.0 | 78.2 | 76.6 |
| 55° | 14891.2 | 10042.6 | 648.4 | 374.7 | 213.4 | 159.7 | 112.4 | 84.7 | 68.4 | 60.3 | 57.0 |
| 57.5° | 16698.0 | 11129.3 | 596.3 | 314.4 | 177.6 | 130.3 | 89.6 | 66.8 | 53.8 | 45.6 | 44.0 |
| 60° | 18358.2 | 12128.0 | 536.0 | 252.5 | 145.0 | 102.6 | 70.1 | 52.1 | 42.4 | 34.2 | 34.2 |
| 62.5° | 20135.7 | 12900.3 | 452.9 | 197.1 | 118.9 | 78.2 | 57.0 | 47.2 | 34.2 | 29.3 | 27.7 |
| 65° | 22019.1 | 13473.8 | 355.2 | 153.1 | 92.9 | 58.7 | 47.2 | 48.9 | 27.7 | 21.2 | 19.6 |
| 67.5° | 23410.4 | 13359.7 | 262.3 | 120.6 | 71.7 | 45.6 | 45.6 | 52.1 | 24.4 | 16.3 | 14.7 |
| 69° | 23104.1 | 12432.7 | 219.9 | 104.3 | 61.9 | 39.1 | 42.4 | 52.1 | 22.8 | 14.7 | 13.0 |
| 70° | 22216.2 | 11406.3 | 193.9 | 92.9 | 55.4 | 35.8 | 40.7 | 50.5 | 21.2 | 14.7 | 13.0 |
| 72.5° | 18501.6 | 8590.9 | 151.5 | 70.1 | 44.0 | 29.3 | 34.2 | 44.0 | 21.2 | 14.7 | 11.4 |
| 75° | 13916.9 | 5498.7 | 115.7 | 50.5 | 32.6 | 22.8 | 26.1 | 32.6 | 21.2 | 13.0 | 11.4 |
| 77.5° | 7572.7 | 1982.8 | 83.1 | 34.2 | 22.8 | 17.9 | 17.9 | 24.4 | 19.6 | 9.8 | 6.5 |
| 80° | 1946.9 | 498.5 | 52.1 | 22.8 | 17.9 | 13.0 | 11.4 | 16.3 | 11.4 | 1.6 | 0.0 |
| 82.5° | 480.6 | 112.4 | 27.7 | 16.3 | 13.0 | 4.9 | 4.9 | 8.1 | 4.9 | 0.0 | 0.0 |
| 85° | 263.9 | 55.4 | 17.9 | 11.4 | 6.5 | 0.0 | 0.0 | 1.6 | 0.0 | 0.0 | 0.0 |
| 87.5° | 135.2 | 16.3 | 4.9 | 3.3 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 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



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

Report Prepared for

Cooper Lighting Solutions

McGRAW-EDISON

Report Number: SP1-1908-441-10-R4

Test Date: 10/25/2019

Luminaire Tested: SA1C-722-U-5WQ

Data in this report applies to families of products SA1C-722-U-5WQ.

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
 Rf: 69.8
 Rg: 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 |

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

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

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

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

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 | | | |

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

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 | | | |

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

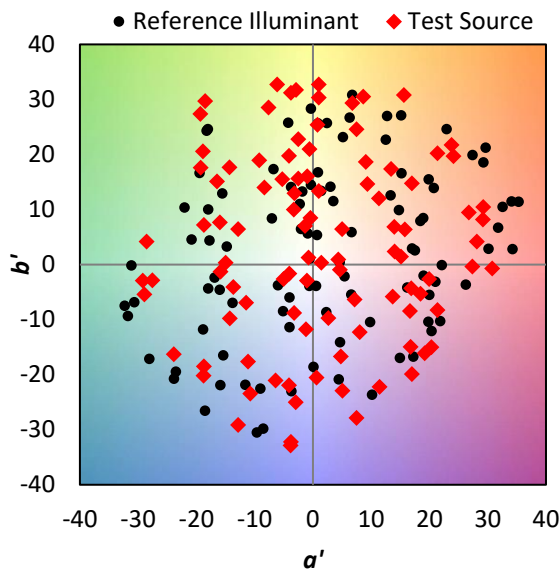
TM-30-18

Summary

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



Color Vector Graphics



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

TM-30-18

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 | |



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

TM-30-18

Color Rendition by Hue-Angle Bin



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

TM-30-18

Measure Comparisons



(END OF REPORT)