

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: P320097

Luminaire Tested: **GLEON-SA3D-760-U-SL4**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P320097
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-24)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: GLEON-SA3D-760-U-SL4
Description: GALLEON AREA AND ROADWAY LUMINAIRE
(3) 70 CRI, 5700K, 1200mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV
SPILL LIGHT ELIMINATOR OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 22509 lumens
Efficiency: N/A
Efficacy: 117.8 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B2 - U0 - G5

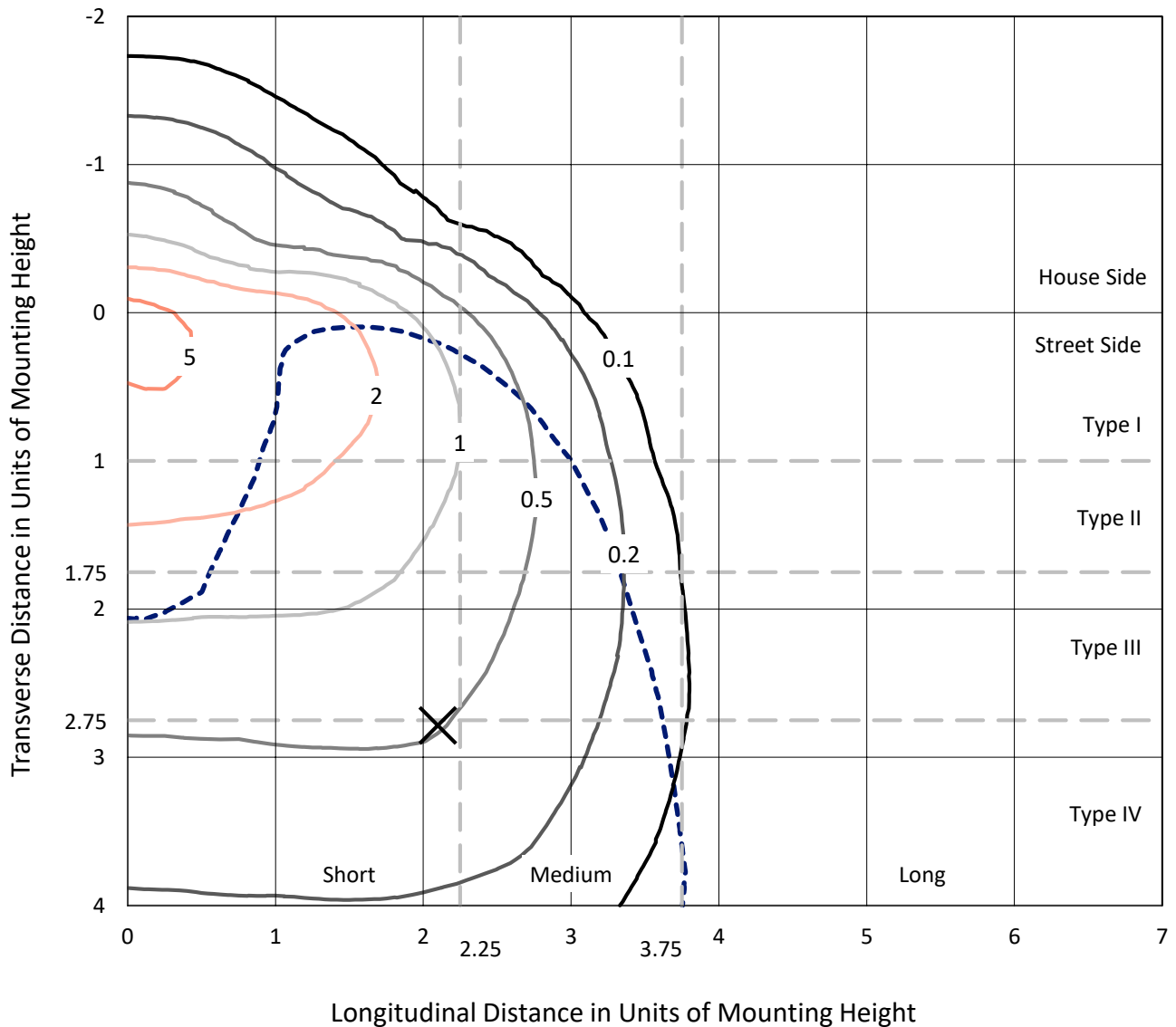
Input Watts (W): 191
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



REPORT NUMBER: P320097
 CATALOG NUMBER: GLEON-SA3D-760-U-SL4

Iso-Footcandle Lines of Horizontal Illumination

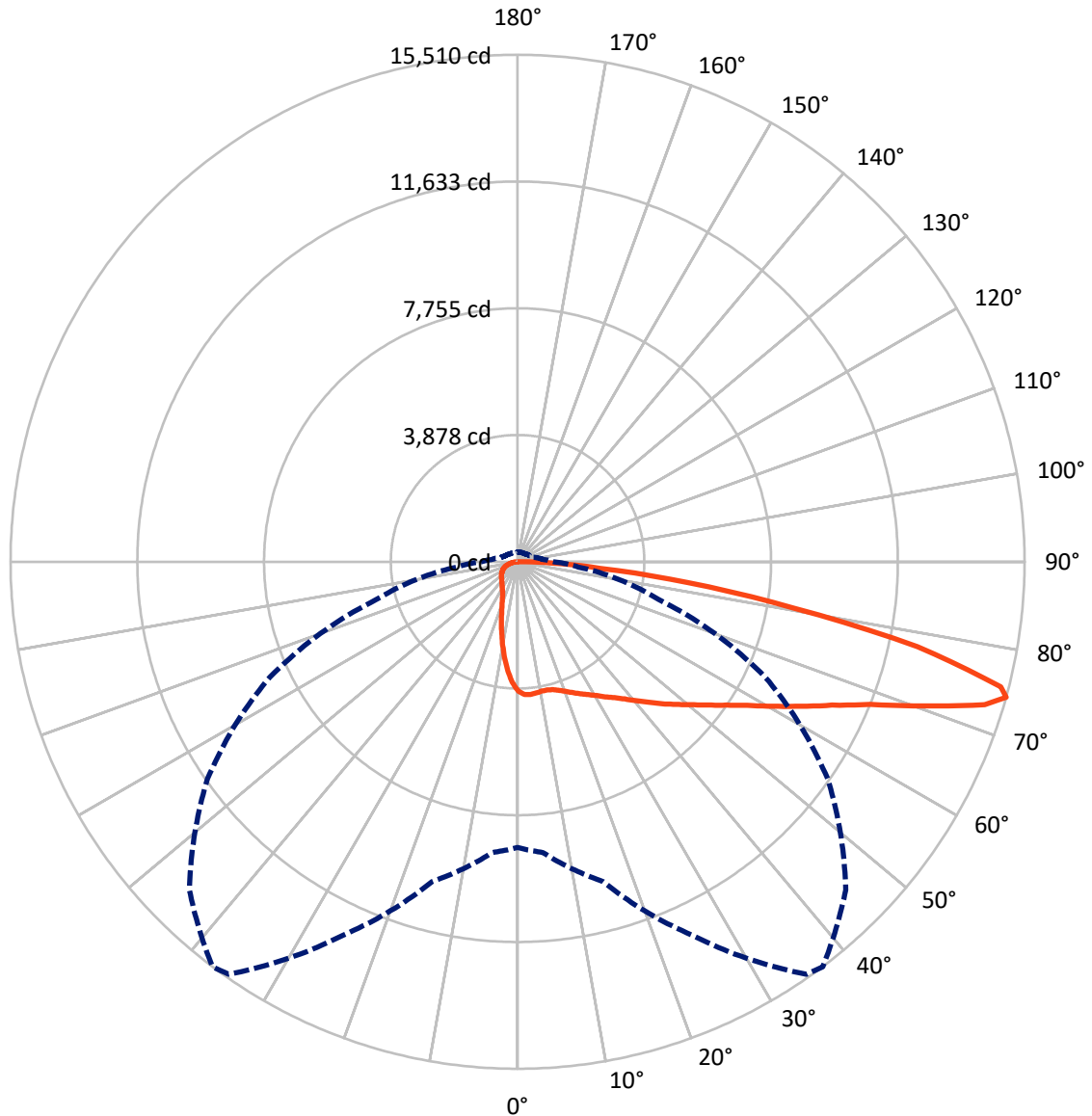
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 6.4 fc
 Type IV - Short - N/A

REPORT NUMBER: P320097
CATALOG NUMBER: GLEON-SA3D-760-U-SL4

Luminous Intensity Polar Plot



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

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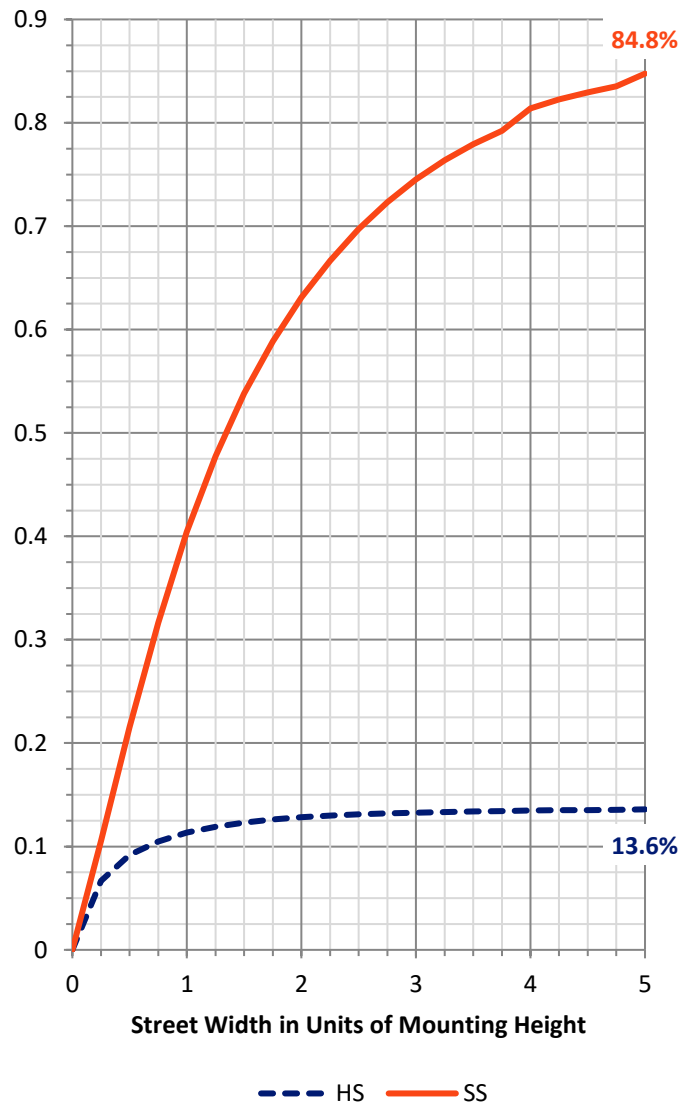
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 3097.1 | 0.0 | 3097.1 |
| | % Fixture | 13.8 | 0.0 | 13.8 |
| Street Side | Lumens | 19411.9 | 0.0 | 19411.9 |
| | % Fixture | 86.2 | 0.0 | 86.2 |
| Total | Lumens | 22509.0 | 0.0 | 22509.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 349.3 | 1.6 |
| 10°-20° | 895.2 | 4.0 |
| 20°-30° | 1379.4 | 6.1 |
| 30°-40° | 2005.8 | 8.9 |
| 40°-50° | 2952.2 | 13.1 |
| 50°-60° | 4145.8 | 18.4 |
| 60°-70° | 5247.3 | 23.3 |
| 70°-80° | 4620.5 | 20.5 |
| 80°-90° | 913.6 | 4.1 |
| 90°-100° | 0.0 | 0.0 |
| 100°-110° | 0.0 | 0.0 |
| 110°-120° | 0.0 | 0.0 |
| 120°-130° | 0.0 | 0.0 |
| 130°-140° | 0.0 | 0.0 |
| 140°-150° | 0.0 | 0.0 |
| 150°-160° | 0.0 | 0.0 |
| 160°-170° | 0.0 | 0.0 |
| 170°-180° | 0.0 | 0.0 |
| 0°-90° | 22509.0 | 100.0 |
| 0°-180° | 22509.0 | 100.0 |

Coefficient of Utilization

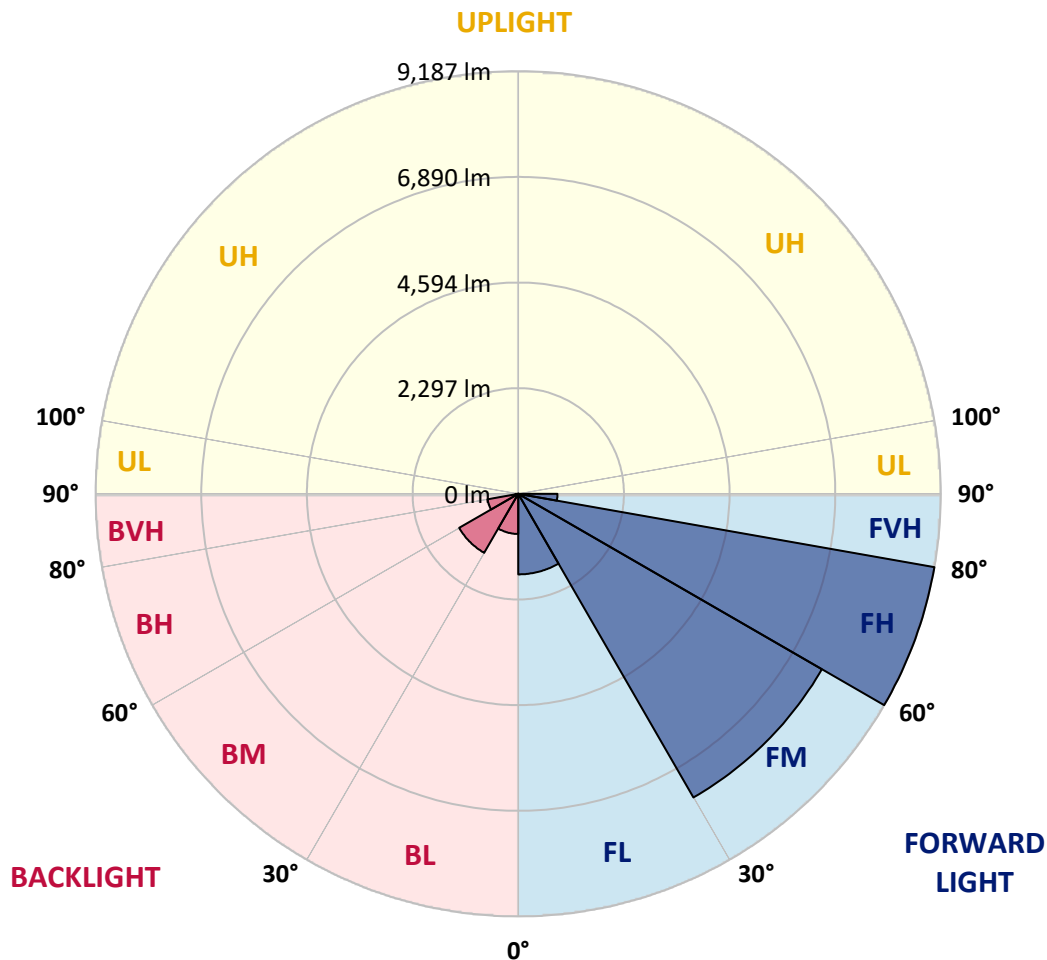


REPORT NUMBER: P320097
 CATALOG NUMBER: GLEON-SA3D-760-U-SL4

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|----------|
| | | | B | U | G |
| FL (0°-30°) | 1751.5 | 7.8 | | | |
| FM (30°-60°) | 7621.7 | 33.9 | | | |
| FH (60°-80°) | 9187.0 | 40.8 | | | G4/12000 |
| FVH (80°-90°) | 851.7 | 3.8 | | | G5 |
| BL (0°-30°) | 872.4 | 3.9 | B2/1000 | | |
| BM (30°-60°) | 1482.1 | 6.6 | B2/2500 | | |
| BH (60°-80°) | 680.8 | 3.0 | B2/1000 | | G2/1000 |
| BVH (80°-90°) | 61.9 | 0.3 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B2-U0-G5
 Type IV Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 37° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| 0° | 3966.0 | 3966.0 | 3966.0 | 3966.0 | 3966.0 | 3966.0 | 3966.0 | 3966.0 | 3966.0 | 3966.0 | 3966.0 |
| 2.5° | 4101.6 | 4102.4 | 4101.6 | 4095.2 | 4080.2 | 4067.5 | 4057.2 | 4042.1 | 4008.8 | 3983.4 | 3945.4 |
| 5° | 4140.4 | 4135.7 | 4132.5 | 4120.6 | 4096.8 | 4082.6 | 4062.7 | 4034.2 | 3979.5 | 3928.7 | 3866.9 |
| 7.5° | 4122.2 | 4116.6 | 4109.5 | 4095.2 | 4068.3 | 4056.4 | 4028.6 | 3991.4 | 3925.6 | 3859.0 | 3770.2 |
| 10° | 4065.9 | 4064.3 | 4061.1 | 4058.0 | 4035.0 | 4025.5 | 4000.1 | 3960.4 | 3895.4 | 3814.6 | 3710.7 |
| 12.5° | 4003.3 | 4007.2 | 4019.9 | 4036.6 | 4026.3 | 4021.5 | 4005.6 | 3978.7 | 3912.1 | 3824.9 | 3699.6 |
| 15° | 3963.6 | 3974.7 | 4008.8 | 4052.4 | 4061.1 | 4059.6 | 4055.6 | 4038.2 | 3967.6 | 3870.9 | 3725.0 |
| 17.5° | 3950.1 | 3968.4 | 4033.4 | 4105.5 | 4130.9 | 4136.5 | 4138.1 | 4107.9 | 4029.4 | 3927.1 | 3751.1 |
| 20° | 3974.7 | 3997.7 | 4092.9 | 4192.0 | 4232.4 | 4235.6 | 4228.4 | 4176.1 | 4088.1 | 3975.5 | 3765.4 |
| 22.5° | 4049.3 | 4069.9 | 4188.8 | 4300.6 | 4346.6 | 4351.3 | 4329.9 | 4250.6 | 4149.9 | 4032.6 | 3785.2 |
| 25° | 4192.8 | 4218.1 | 4337.1 | 4448.9 | 4472.7 | 4473.4 | 4442.5 | 4344.2 | 4230.8 | 4112.7 | 3828.0 |
| 27.5° | 4379.9 | 4405.3 | 4512.3 | 4621.7 | 4609.0 | 4601.9 | 4559.9 | 4461.6 | 4336.3 | 4222.9 | 3904.2 |
| 30° | 4588.4 | 4616.2 | 4717.7 | 4795.4 | 4765.2 | 4751.0 | 4716.9 | 4590.0 | 4483.0 | 4373.5 | 4020.7 |
| 32.5° | 4804.1 | 4829.4 | 4918.3 | 4971.4 | 4933.3 | 4927.0 | 4875.4 | 4759.7 | 4674.0 | 4603.5 | 4209.4 |
| 35° | 5025.3 | 5043.5 | 5130.7 | 5160.9 | 5110.1 | 5108.5 | 5094.3 | 4988.0 | 4934.1 | 4967.4 | 4483.8 |
| 37.5° | 5251.3 | 5256.0 | 5330.5 | 5332.1 | 5317.1 | 5323.4 | 5338.5 | 5271.9 | 5286.9 | 5390.8 | 4840.5 |
| 40° | 5452.7 | 5465.3 | 5519.3 | 5535.9 | 5562.1 | 5584.3 | 5659.6 | 5616.0 | 5732.5 | 5916.5 | 5284.6 |
| 42.5° | 5601.7 | 5626.3 | 5712.7 | 5755.5 | 5840.4 | 5875.3 | 5981.5 | 6021.9 | 6256.6 | 6532.6 | 5812.6 |
| 45° | 5727.8 | 5765.8 | 5904.6 | 5992.6 | 6136.1 | 6197.2 | 6349.4 | 6485.0 | 6848.9 | 7201.0 | 6368.4 |
| 47.5° | 5864.2 | 5912.5 | 6086.2 | 6254.3 | 6449.3 | 6518.3 | 6795.0 | 6998.0 | 7480.8 | 7873.3 | 6892.5 |
| 50° | 6064.8 | 6102.0 | 6271.7 | 6535.7 | 6779.1 | 6867.9 | 7250.9 | 7541.9 | 8123.1 | 8514.0 | 7346.8 |
| 52.5° | 6344.6 | 6330.4 | 6473.9 | 6844.2 | 7170.8 | 7280.2 | 7737.7 | 8120.7 | 8774.0 | 9093.6 | 7730.6 |
| 55° | 6626.1 | 6602.3 | 6703.0 | 7166.9 | 7627.5 | 7742.5 | 8273.7 | 8701.9 | 9393.3 | 9615.3 | 8024.8 |
| 57.5° | 6939.3 | 6894.1 | 6979.0 | 7530.8 | 8147.7 | 8284.8 | 8873.9 | 9319.5 | 10002.2 | 10037.1 | 8211.9 |
| 60° | 7262.0 | 7201.0 | 7296.1 | 7981.9 | 8808.1 | 8969.9 | 9576.4 | 9922.1 | 10576.3 | 10374.9 | 8272.1 |
| 62.5° | 7544.3 | 7501.5 | 7648.1 | 8485.4 | 9552.6 | 9730.3 | 10266.2 | 10562.8 | 11142.4 | 10515.2 | 8054.9 |
| 65° | 7790.9 | 7798.0 | 8051.7 | 9051.5 | 10382.8 | 10572.3 | 11057.5 | 11352.5 | 11588.0 | 10432.0 | 7546.7 |
| 67.5° | 8085.0 | 8125.5 | 8558.4 | 9796.9 | 11427.8 | 11635.6 | 12208.8 | 12213.6 | 11836.9 | 9943.5 | 6546.0 |
| 70° | 8514.0 | 8597.2 | 9255.3 | 10830.8 | 12913.7 | 13199.1 | 13641.5 | 12719.4 | 11487.3 | 8619.4 | 5150.6 |
| 72.5° | 8894.6 | 9050.0 | 9996.7 | 12013.8 | 14724.6 | 14941.1 | 14479.6 | 12427.6 | 10026.0 | 6459.6 | 3208.8 |
| 74° | 8739.9 | 8932.6 | 10131.5 | 12596.5 | 15406.5 | 15510.4 | 14196.6 | 11576.1 | 8359.4 | 4473.4 | 1864.9 |
| 75° | 8406.9 | 8616.3 | 9934.8 | 12591.0 | 15320.1 | 15262.2 | 13513.1 | 10603.2 | 6884.6 | 3051.0 | 1240.9 |
| 77.5° | 6784.7 | 7005.9 | 8371.3 | 10791.1 | 12561.6 | 12506.9 | 10380.4 | 7112.9 | 3015.3 | 1000.6 | 630.3 |
| 80° | 3944.6 | 4113.5 | 5196.6 | 6852.9 | 8470.4 | 8569.5 | 6826.7 | 3519.6 | 1186.2 | 562.2 | 427.4 |
| 82.5° | 1752.3 | 1868.8 | 2510.3 | 3498.2 | 5111.7 | 5239.4 | 3575.1 | 1844.2 | 732.6 | 341.7 | 256.9 |
| 85° | 1149.7 | 1236.1 | 1523.9 | 1665.8 | 2434.1 | 2521.4 | 1749.9 | 1435.9 | 483.7 | 187.9 | 188.7 |
| 87.5° | 827.0 | 910.2 | 1132.2 | 988.7 | 1117.2 | 1057.7 | 952.3 | 1328.9 | 194.3 | 107.0 | 63.4 |
| 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: GLEON-SA3D-760-U-SL4

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 3966.0 | 3966.0 | 3966.0 | 3966.0 | 3966.0 | 3966.0 | 3966.0 | 3966.0 | 3966.0 | 3966.0 | 3966.0 |
| 2.5° | 3928.7 | 3916.0 | 3887.5 | 3833.6 | 3803.5 | 3778.1 | 3736.1 | 3711.5 | 3700.4 | 3699.6 | 3704.3 |
| 5° | 3831.2 | 3801.9 | 3728.1 | 3637.7 | 3565.6 | 3499.8 | 3418.1 | 3369.0 | 3334.1 | 3313.5 | 3319.0 |
| 7.5° | 3717.8 | 3671.8 | 3556.1 | 3411.8 | 3296.0 | 3168.4 | 3042.3 | 2967.0 | 2908.3 | 2864.7 | 2872.6 |
| 10° | 3640.1 | 3576.7 | 3407.8 | 3200.1 | 3007.4 | 2821.9 | 2648.2 | 2544.4 | 2461.9 | 2398.5 | 2403.2 |
| 12.5° | 3614.0 | 3528.3 | 3294.4 | 3016.9 | 2746.5 | 2492.8 | 2266.1 | 2106.7 | 2021.9 | 1949.7 | 1955.2 |
| 15° | 3617.9 | 3503.0 | 3199.3 | 2852.0 | 2511.9 | 2192.3 | 1917.2 | 1730.9 | 1615.9 | 1565.9 | 1566.7 |
| 17.5° | 3621.1 | 3473.6 | 3099.4 | 2675.2 | 2279.5 | 1911.6 | 1612.7 | 1424.0 | 1315.4 | 1269.4 | 1270.2 |
| 20° | 3610.8 | 3426.0 | 2975.7 | 2472.2 | 2036.9 | 1654.0 | 1364.6 | 1204.4 | 1121.9 | 1086.2 | 1086.2 |
| 22.5° | 3597.3 | 3369.8 | 2836.1 | 2268.4 | 1797.5 | 1430.4 | 1186.9 | 1064.8 | 1017.3 | 993.5 | 992.7 |
| 25° | 3603.7 | 3327.7 | 2693.4 | 2059.1 | 1577.0 | 1252.0 | 1068.8 | 987.9 | 956.2 | 941.2 | 940.4 |
| 27.5° | 3637.7 | 3307.9 | 2561.8 | 1850.6 | 1384.4 | 1118.0 | 989.5 | 932.4 | 911.8 | 902.3 | 902.3 |
| 30° | 3699.6 | 3307.9 | 2424.6 | 1673.0 | 1224.2 | 1018.9 | 928.5 | 889.6 | 875.3 | 869.0 | 869.0 |
| 32.5° | 3807.4 | 3326.1 | 2292.2 | 1497.0 | 1096.6 | 941.2 | 877.7 | 851.6 | 840.5 | 837.3 | 837.3 |
| 35° | 3993.0 | 3388.0 | 2163.0 | 1330.5 | 993.5 | 877.7 | 829.4 | 814.3 | 806.4 | 805.6 | 807.9 |
| 37.5° | 4253.8 | 3514.1 | 2041.7 | 1207.6 | 920.5 | 826.2 | 788.9 | 777.0 | 772.3 | 776.2 | 779.4 |
| 40° | 4582.1 | 3685.3 | 1931.5 | 1096.6 | 865.0 | 785.0 | 751.7 | 743.7 | 741.3 | 746.9 | 751.7 |
| 42.5° | 4978.5 | 3916.8 | 1841.1 | 1016.5 | 822.2 | 750.1 | 719.9 | 710.4 | 708.0 | 714.4 | 720.7 |
| 45° | 5407.5 | 4165.8 | 1777.6 | 957.0 | 788.9 | 723.9 | 692.2 | 681.9 | 677.1 | 680.3 | 687.4 |
| 47.5° | 5797.6 | 4401.3 | 1752.3 | 915.0 | 757.2 | 701.7 | 667.6 | 654.9 | 647.0 | 645.4 | 651.0 |
| 50° | 6126.6 | 4576.5 | 1764.2 | 889.6 | 731.8 | 677.1 | 643.8 | 629.5 | 617.7 | 610.5 | 614.5 |
| 52.5° | 6366.1 | 4686.7 | 1775.3 | 878.5 | 712.0 | 650.2 | 617.7 | 604.2 | 588.3 | 576.4 | 576.4 |
| 55° | 6539.7 | 4712.1 | 1750.7 | 869.8 | 696.9 | 620.8 | 588.3 | 575.6 | 559.8 | 546.3 | 544.7 |
| 57.5° | 6607.9 | 4640.7 | 1659.5 | 857.1 | 686.6 | 593.1 | 557.4 | 547.9 | 534.4 | 518.5 | 517.8 |
| 60° | 6515.9 | 4420.3 | 1483.5 | 830.1 | 673.2 | 570.1 | 526.5 | 520.1 | 513.8 | 498.7 | 497.9 |
| 62.5° | 6146.4 | 3936.7 | 1255.9 | 775.4 | 646.2 | 545.5 | 497.9 | 501.1 | 501.9 | 491.6 | 490.0 |
| 65° | 5476.4 | 3272.2 | 1033.9 | 704.1 | 605.8 | 516.2 | 468.6 | 483.7 | 492.4 | 490.8 | 488.4 |
| 67.5° | 4502.8 | 2546.7 | 876.1 | 628.8 | 552.6 | 475.7 | 436.9 | 454.3 | 461.5 | 467.0 | 465.4 |
| 70° | 3342.0 | 1795.9 | 724.7 | 549.5 | 488.4 | 428.2 | 395.6 | 404.4 | 399.6 | 406.0 | 408.3 |
| 72.5° | 1863.3 | 1077.5 | 590.7 | 470.2 | 421.8 | 372.7 | 349.7 | 348.1 | 337.8 | 337.8 | 337.8 |
| 74° | 1118.0 | 790.5 | 519.3 | 421.0 | 381.4 | 336.2 | 316.4 | 309.2 | 299.7 | 300.5 | 299.7 |
| 75° | 899.1 | 679.5 | 476.5 | 388.5 | 352.8 | 314.8 | 295.0 | 285.4 | 278.3 | 278.3 | 277.5 |
| 77.5° | 567.7 | 516.2 | 383.8 | 309.2 | 282.3 | 259.3 | 245.8 | 233.1 | 233.1 | 232.3 | 231.5 |
| 80° | 428.9 | 410.7 | 298.9 | 233.9 | 216.5 | 199.0 | 190.3 | 184.7 | 184.7 | 187.1 | 186.3 |
| 82.5° | 294.2 | 309.2 | 210.1 | 163.3 | 154.6 | 141.9 | 140.3 | 141.1 | 138.8 | 135.6 | 134.8 |
| 85° | 214.9 | 232.3 | 141.9 | 103.1 | 94.4 | 86.4 | 92.8 | 95.9 | 92.0 | 84.8 | 81.7 |
| 87.5° | 82.5 | 152.2 | 76.1 | 42.8 | 39.6 | 34.1 | 39.6 | 41.2 | 44.4 | 34.9 | 35.7 |
| 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: SP1-1908-441-9-R4

Test Date: 10/23/2019

Luminaire Tested: SA1C-760-U-5WQ

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

Test Information

Test Method: LM-79-2008
 Report Number: SP1-1908-441-9-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-760-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): | 5474 | CRI (Ra): | 71.7 | R9: | -27.1 |
| CIE u': | 0.2052 | R1: | 70.6 | R10: | 40.8 |
| CIE v': | 0.4804 | R2: | 74.6 | R11: | 74.6 |
| Duv: | 0.0025 | R3: | 78.3 | R12: | 50.4 |
| CIE x: | 0.3330 | R4: | 73.8 | R13: | 70.0 |
| CIE y: | 0.3466 | R5: | 72.4 | R14: | 87.8 |
| CIE z: | 0.3204 | R6: | 67.5 | | |
| Peak Wavelength (nm): | 442 | R7: | 77.5 | | |
| Dominant Wavelength (nm): | 554 | R8: | 58.9 | | |
| Purity: | 4.1 | | | | |
| Rf: | 72.1 | | | | |
| Rg: | 97.2 | | | | |



Test Conditions

Stabilization Time: 240M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 24.6/31%
 Sphere Temperature (°C): 25.9

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| 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 5700K 4-step quadrangle

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Photopic Flux vs. Wavelength



#####

| λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360 | 3540 | NR | 490 | 33363 | NR | 620 | 80193 | NR | 750 | 4663 | NR | 880 | 4678 | NR |
| 365 | 2862 | NR | 495 | 44177 | NR | 625 | 73091 | NR | 755 | 4147 | NR | 885 | 4128 | NR |
| 370 | 2865 | NR | 500 | 57019 | NR | 630 | 66269 | NR | 760 | 4040 | NR | 890 | 4504 | NR |
| 375 | 3254 | NR | 505 | 70030 | NR | 635 | 60012 | NR | 765 | 3474 | NR | 895 | 4371 | NR |
| 380 | 3076 | NR | 510 | 81972 | NR | 640 | 53914 | NR | 770 | 3469 | NR | 900 | 4082 | NR |
| 385 | 2904 | NR | 515 | 92590 | NR | 645 | 48385 | NR | 775 | 3181 | NR | 905 | 2982 | NR |
| 390 | 2689 | NR | 520 | 100305 | NR | 650 | 43219 | NR | 780 | 2969 | NR | 910 | 4351 | NR |
| 395 | 2619 | NR | 525 | 107452 | NR | 655 | 38562 | NR | 785 | 3132 | NR | 915 | 3365 | NR |
| 400 | 2679 | NR | 530 | 111373 | NR | 660 | 34110 | NR | 790 | 2507 | NR | 920 | 3430 | NR |
| 405 | 3515 | NR | 535 | 114505 | NR | 665 | 30085 | NR | 795 | 2968 | NR | 925 | 4264 | NR |
| 410 | 6934 | NR | 540 | 116408 | NR | 670 | 26205 | NR | 800 | 2758 | NR | 930 | 4095 | NR |
| 415 | 14943 | NR | 545 | 118700 | NR | 675 | 22906 | NR | 805 | 2872 | NR | 935 | 5048 | NR |
| 420 | 31939 | NR | 550 | 119209 | NR | 680 | 20058 | NR | 810 | 3094 | NR | 940 | 4074 | NR |
| 425 | 64701 | NR | 555 | 120742 | NR | 685 | 17413 | NR | 815 | 3222 | NR | 945 | 4949 | NR |
| 430 | 110939 | NR | 560 | 121594 | NR | 690 | 15447 | NR | 820 | 3238 | NR | 950 | 4387 | NR |
| 435 | 164597 | NR | 565 | 121913 | NR | 695 | 13398 | NR | 825 | 3524 | NR | 955 | 4978 | NR |
| 440 | 207696 | NR | 570 | 122147 | NR | 700 | 11777 | NR | 830 | 2921 | NR | 960 | 4706 | NR |
| 445 | 201830 | NR | 575 | 121605 | NR | 705 | 10412 | NR | 835 | 3595 | NR | 965 | 5083 | NR |
| 450 | 145410 | NR | 580 | 120248 | NR | 710 | 9544 | NR | 840 | 3016 | NR | 970 | 4522 | NR |
| 455 | 89594 | NR | 585 | 117717 | NR | 715 | 8940 | NR | 845 | 4032 | NR | 975 | 4740 | NR |
| 460 | 58321 | NR | 590 | 114359 | NR | 720 | 7897 | NR | 850 | 3579 | NR | 980 | 6122 | NR |
| 465 | 39318 | NR | 595 | 109974 | NR | 725 | 7045 | NR | 855 | 4571 | NR | 985 | 6450 | NR |
| 470 | 27693 | NR | 600 | 105269 | NR | 730 | 6483 | NR | 860 | 4485 | NR | 990 | 4875 | NR |
| 475 | 23081 | NR | 605 | 99453 | NR | 735 | 5838 | NR | 865 | 3978 | NR | 995 | 4764 | NR |
| 480 | 23002 | NR | 610 | 92921 | NR | 740 | 5261 | NR | 870 | 4298 | NR | 1000 | 3640 | NR |
| 485 | 26201 | NR | 615 | 86989 | NR | 745 | 4760 | NR | 875 | 4356 | NR | | | |

REPORT NUMBER: SP1-1908-441-9-R4

Scotopic Flux vs. Wavelength



Scotopic Lumens: 13759.3 S/P: 1.85

| 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 | 3540 | NR | 490 | 33363 | NR | 620 | 80193 | NR | 750 | 4663 | NR | 880 | 4678 | NR |
| 365 | 2862 | NR | 495 | 44177 | NR | 625 | 73091 | NR | 755 | 4147 | NR | 885 | 4128 | NR |
| 370 | 2865 | NR | 500 | 57019 | NR | 630 | 66269 | NR | 760 | 4040 | NR | 890 | 4504 | NR |
| 375 | 3254 | NR | 505 | 70030 | NR | 635 | 60012 | NR | 765 | 3474 | NR | 895 | 4371 | NR |
| 380 | 3076 | NR | 510 | 81972 | NR | 640 | 53914 | NR | 770 | 3469 | NR | 900 | 4082 | NR |
| 385 | 2904 | NR | 515 | 92590 | NR | 645 | 48385 | NR | 775 | 3181 | NR | 905 | 2982 | NR |
| 390 | 2689 | NR | 520 | 100305 | NR | 650 | 43219 | NR | 780 | 2969 | NR | 910 | 4351 | NR |
| 395 | 2619 | NR | 525 | 107452 | NR | 655 | 38562 | NR | 785 | 3132 | NR | 915 | 3365 | NR |
| 400 | 2679 | NR | 530 | 111373 | NR | 660 | 34110 | NR | 790 | 2507 | NR | 920 | 3430 | NR |
| 405 | 3515 | NR | 535 | 114505 | NR | 665 | 30085 | NR | 795 | 2968 | NR | 925 | 4264 | NR |
| 410 | 6934 | NR | 540 | 116408 | NR | 670 | 26205 | NR | 800 | 2758 | NR | 930 | 4095 | NR |
| 415 | 14943 | NR | 545 | 118700 | NR | 675 | 22906 | NR | 805 | 2872 | NR | 935 | 5048 | NR |
| 420 | 31939 | NR | 550 | 119209 | NR | 680 | 20058 | NR | 810 | 3094 | NR | 940 | 4074 | NR |
| 425 | 64701 | NR | 555 | 120742 | NR | 685 | 17413 | NR | 815 | 3222 | NR | 945 | 4949 | NR |
| 430 | 110939 | NR | 560 | 121594 | NR | 690 | 15447 | NR | 820 | 3238 | NR | 950 | 4387 | NR |
| 435 | 164597 | NR | 565 | 121913 | NR | 695 | 13398 | NR | 825 | 3524 | NR | 955 | 4978 | NR |
| 440 | 207696 | NR | 570 | 122147 | NR | 700 | 11777 | NR | 830 | 2921 | NR | 960 | 4706 | NR |
| 445 | 201830 | NR | 575 | 121605 | NR | 705 | 10412 | NR | 835 | 3595 | NR | 965 | 5083 | NR |
| 450 | 145410 | NR | 580 | 120248 | NR | 710 | 9544 | NR | 840 | 3016 | NR | 970 | 4522 | NR |
| 455 | 89594 | NR | 585 | 117717 | NR | 715 | 8940 | NR | 845 | 4032 | NR | 975 | 4740 | NR |
| 460 | 58321 | NR | 590 | 114359 | NR | 720 | 7897 | NR | 850 | 3579 | NR | 980 | 6122 | NR |
| 465 | 39318 | NR | 595 | 109974 | NR | 725 | 7045 | NR | 855 | 4571 | NR | 985 | 6450 | NR |
| 470 | 27693 | NR | 600 | 105269 | NR | 730 | 6483 | NR | 860 | 4485 | NR | 990 | 4875 | NR |
| 475 | 23081 | NR | 605 | 99453 | NR | 735 | 5838 | NR | 865 | 3978 | NR | 995 | 4764 | NR |
| 480 | 23002 | NR | 610 | 92921 | NR | 740 | 5261 | NR | 870 | 4298 | NR | 1000 | 3640 | NR |
| 485 | 26201 | NR | 615 | 86989 | NR | 745 | 4760 | NR | 875 | 4356 | NR | | | |

REPORT NUMBER: SP1-1908-441-9-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 5527.6 M/P: 0.74

| 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 | 3540 | NR | 490 | 33363 | NR | 620 | 80193 | NR | 750 | 4663 | NR | 880 | 4678 | NR |
| 365 | 2862 | NR | 495 | 44177 | NR | 625 | 73091 | NR | 755 | 4147 | NR | 885 | 4128 | NR |
| 370 | 2865 | NR | 500 | 57019 | NR | 630 | 66269 | NR | 760 | 4040 | NR | 890 | 4504 | NR |
| 375 | 3254 | NR | 505 | 70030 | NR | 635 | 60012 | NR | 765 | 3474 | NR | 895 | 4371 | NR |
| 380 | 3076 | NR | 510 | 81972 | NR | 640 | 53914 | NR | 770 | 3469 | NR | 900 | 4082 | NR |
| 385 | 2904 | NR | 515 | 92590 | NR | 645 | 48385 | NR | 775 | 3181 | NR | 905 | 2982 | NR |
| 390 | 2689 | NR | 520 | 100305 | NR | 650 | 43219 | NR | 780 | 2969 | NR | 910 | 4351 | NR |
| 395 | 2619 | NR | 525 | 107452 | NR | 655 | 38562 | NR | 785 | 3132 | NR | 915 | 3365 | NR |
| 400 | 2679 | NR | 530 | 111373 | NR | 660 | 34110 | NR | 790 | 2507 | NR | 920 | 3430 | NR |
| 405 | 3515 | NR | 535 | 114505 | NR | 665 | 30085 | NR | 795 | 2968 | NR | 925 | 4264 | NR |
| 410 | 6934 | NR | 540 | 116408 | NR | 670 | 26205 | NR | 800 | 2758 | NR | 930 | 4095 | NR |
| 415 | 14943 | NR | 545 | 118700 | NR | 675 | 22906 | NR | 805 | 2872 | NR | 935 | 5048 | NR |
| 420 | 31939 | NR | 550 | 119209 | NR | 680 | 20058 | NR | 810 | 3094 | NR | 940 | 4074 | NR |
| 425 | 64701 | NR | 555 | 120742 | NR | 685 | 17413 | NR | 815 | 3222 | NR | 945 | 4949 | NR |
| 430 | 110939 | NR | 560 | 121594 | NR | 690 | 15447 | NR | 820 | 3238 | NR | 950 | 4387 | NR |
| 435 | 164597 | NR | 565 | 121913 | NR | 695 | 13398 | NR | 825 | 3524 | NR | 955 | 4978 | NR |
| 440 | 207696 | NR | 570 | 122147 | NR | 700 | 11777 | NR | 830 | 2921 | NR | 960 | 4706 | NR |
| 445 | 201830 | NR | 575 | 121605 | NR | 705 | 10412 | NR | 835 | 3595 | NR | 965 | 5083 | NR |
| 450 | 145410 | NR | 580 | 120248 | NR | 710 | 9544 | NR | 840 | 3016 | NR | 970 | 4522 | NR |
| 455 | 89594 | NR | 585 | 117717 | NR | 715 | 8940 | NR | 845 | 4032 | NR | 975 | 4740 | NR |
| 460 | 58321 | NR | 590 | 114359 | NR | 720 | 7897 | NR | 850 | 3579 | NR | 980 | 6122 | NR |
| 465 | 39318 | NR | 595 | 109974 | NR | 725 | 7045 | NR | 855 | 4571 | NR | 985 | 6450 | NR |
| 470 | 27693 | NR | 600 | 105269 | NR | 730 | 6483 | NR | 860 | 4485 | NR | 990 | 4875 | NR |
| 475 | 23081 | NR | 605 | 99453 | NR | 735 | 5838 | NR | 865 | 3978 | NR | 995 | 4764 | NR |
| 480 | 23002 | NR | 610 | 92921 | NR | 740 | 5261 | NR | 870 | 4298 | NR | 1000 | 3640 | NR |
| 485 | 26201 | NR | 615 | 86989 | NR | 745 | 4760 | NR | 875 | 4356 | NR | | | |

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Summary

$R_f = 72.1$
 $R_g = 97.2$
 CIE $R_a = 71.7$
 $R_g = -27.1$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 54 | CES51 = 88 | CES76 = 43 |
| CES02 = 59 | CES27 = 79 | CES52 = 90 | CES77 = 64 |
| CES03 = 30 | CES28 = 77 | CES53 = 77 | CES78 = 46 |
| CES04 = 69 | CES29 = 50 | CES54 = 81 | CES79 = 74 |
| CES05 = 46 | CES30 = 59 | CES55 = 80 | CES80 = 70 |
| CES06 = 50 | CES31 = 55 | CES56 = 70 | CES81 = 71 |
| CES07 = 38 | CES32 = 52 | CES57 = 68 | CES82 = 88 |
| CES08 = 38 | CES33 = 63 | CES58 = 70 | CES83 = 82 |
| CES09 = 29 | CES34 = 63 | CES59 = 88 | CES84 = 87 |
| CES10 = 72 | CES35 = 79 | CES60 = 92 | CES85 = 84 |
| CES11 = 55 | CES36 = 90 | CES61 = 88 | CES86 = 76 |
| CES12 = 61 | CES37 = 72 | CES62 = 81 | CES87 = 75 |
| CES13 = 41 | CES38 = 68 | CES63 = 75 | CES88 = 77 |
| CES14 = 74 | CES39 = 91 | CES64 = 72 | CES89 = 76 |
| CES15 = 70 | CES40 = 83 | CES65 = 65 | CES90 = 76 |
| CES16 = 46 | CES41 = 84 | CES66 = 66 | CES91 = 92 |
| CES17 = 48 | CES42 = 70 | CES67 = 64 | CES92 = 70 |
| CES18 = 55 | CES43 = 69 | CES68 = 71 | CES93 = 83 |
| CES19 = 70 | CES44 = 98 | CES69 = 80 | CES94 = 60 |
| CES20 = 64 | CES45 = 79 | CES70 = 58 | CES95 = 73 |
| CES21 = 85 | CES46 = 78 | CES71 = 55 | CES96 = 79 |
| CES22 = 77 | CES47 = 76 | CES72 = 84 | CES97 = 84 |
| CES23 = 91 | CES48 = 68 | CES73 = 47 | CES98 = 73 |
| CES24 = 90 | CES49 = 78 | CES74 = 94 | CES99 = 62 |
| CES25 = 71 | CES50 = 87 | CES75 = 51 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)