

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: P319766

Luminaire Tested: **GLEON-SA2C-760-U-SL3**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P319766  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-22)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: McGRAW-EDISON  
Catalog Number: GLEON-SA2C-760-U-SL3  
Description: GALLEON AREA AND ROADWAY LUMINAIRE  
(2) 70 CRI, 5700K, 1050mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III  
SPILL LIGHT ELIMINATOR OPTICS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 14473 lumens  
Efficiency: N/A  
Efficacy: 128.1 lumens/watt  
Luminous Opening: Rectangular (W 0.5' x L: 1' x H: 0')  
IES Classification: Type III - Medium  
BUG Rating: B2 - U0 - G3

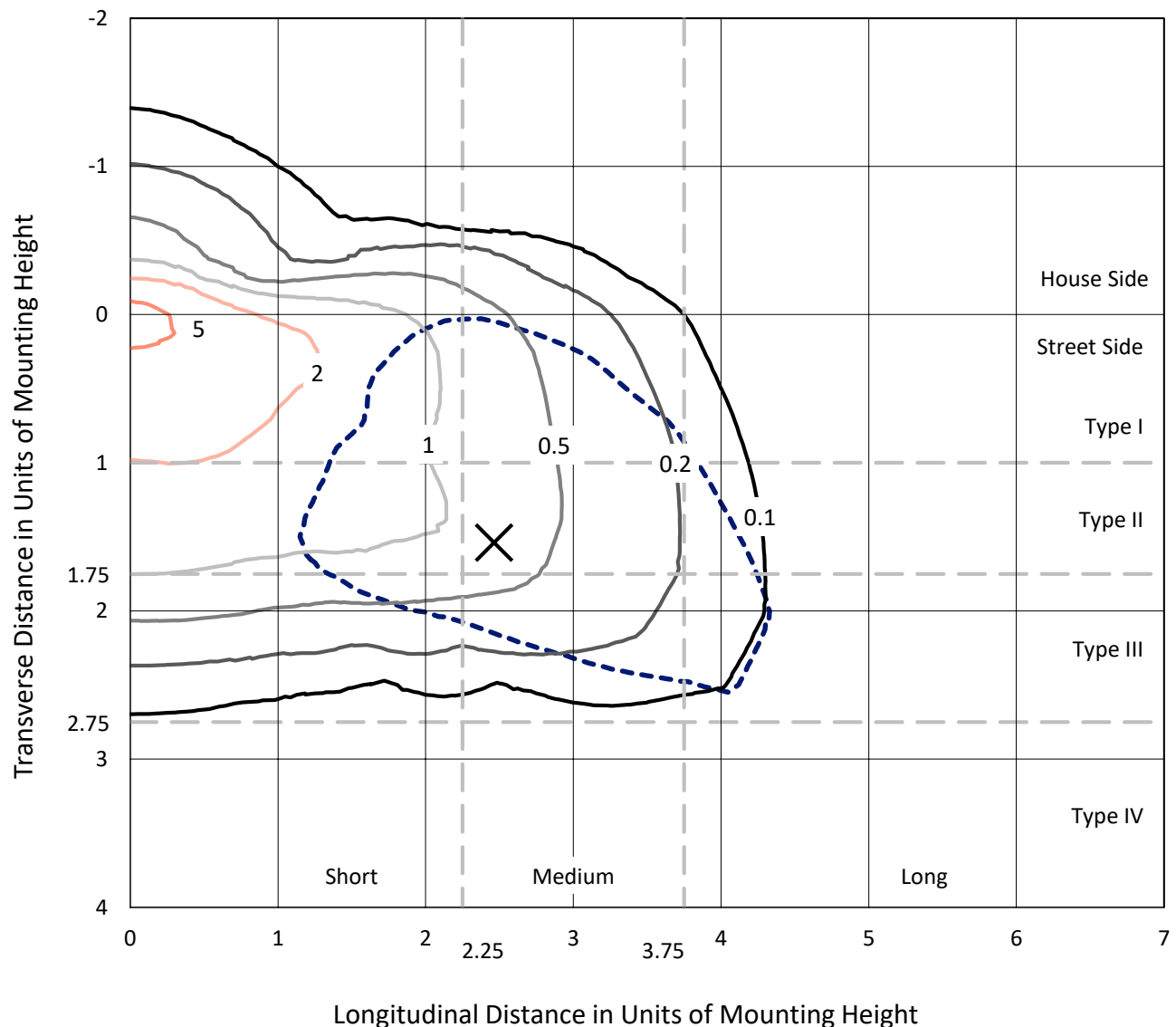
Input Watts (W): 113  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



REPORT NUMBER: P319766  
 CATALOG NUMBER: GLEON-SA2C-760-U-SL3

## Iso-Footcandle Lines of Horizontal Illumination

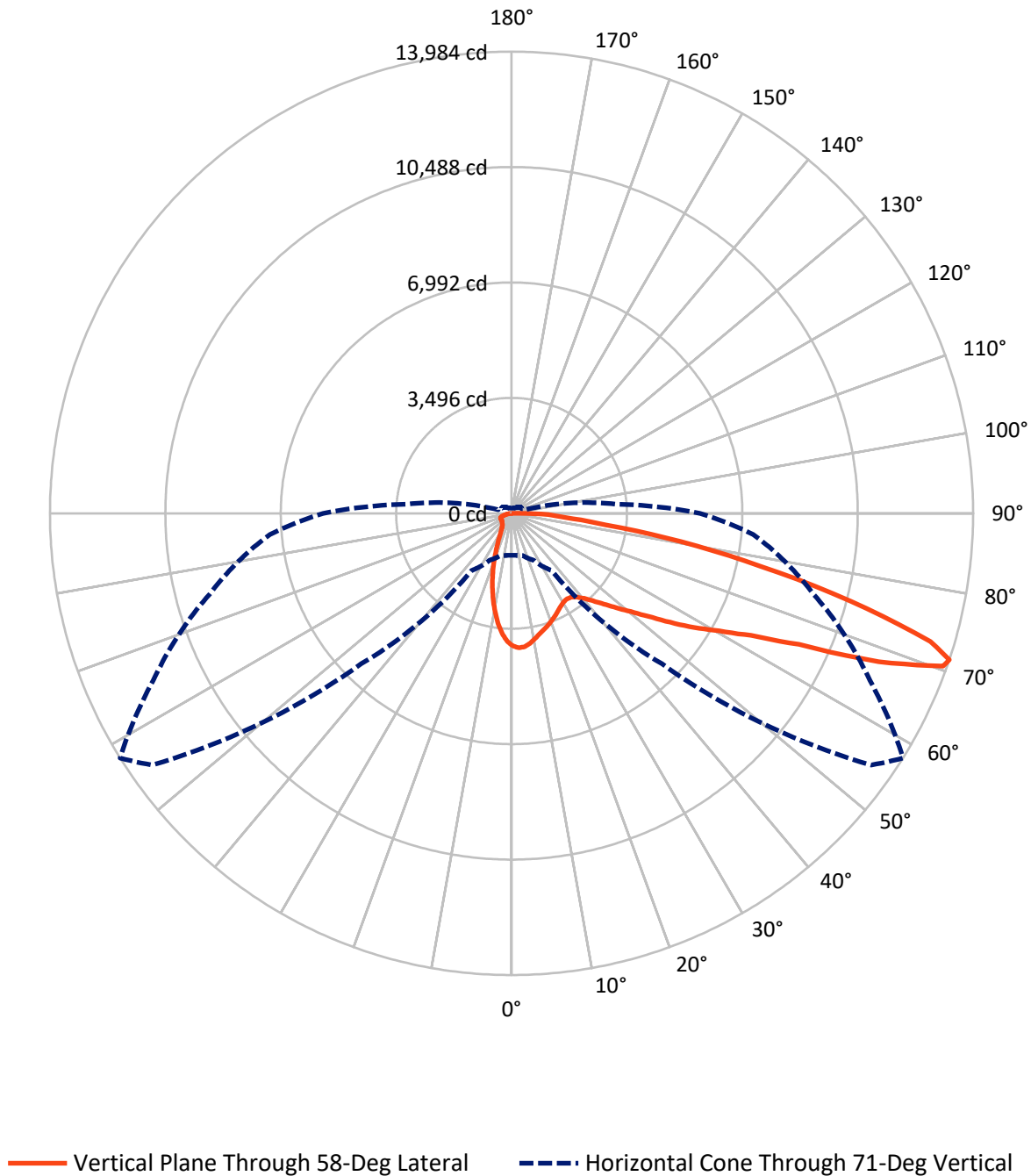
✕ Max cd  
 - - - 1/2 Max cd



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

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## Luminous Intensity Polar Plot



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CATALOG NUMBER: GLEON-SA2C-760-U-SL3

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 2163.8   | 0.0    | 2163.8  |
|                    | % Fixture | 15.0     | 0.0    | 15.0    |
| <b>Street Side</b> | Lumens    | 12309.2  | 0.0    | 12309.2 |
|                    | % Fixture | 85.0     | 0.0    | 85.0    |
| <b>Total</b>       | Lumens    | 14473.0  | 0.0    | 14473.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 345.9   | 2.4       |
| 10°-20°   | 769.2   | 5.3       |
| 20°-30°   | 977.6   | 6.8       |
| 30°-40°   | 1245.3  | 8.6       |
| 40°-50°   | 1765.9  | 12.2      |
| 50°-60°   | 2732.8  | 18.9      |
| 60°-70°   | 3720.4  | 25.7      |
| 70°-80°   | 2481.9  | 17.1      |
| 80°-90°   | 433.9   | 3.0       |
| 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°    | 14473.0 | 100.0     |
| 0°-180°   | 14473.0 | 100.0     |

**Coefficient of Utilization**



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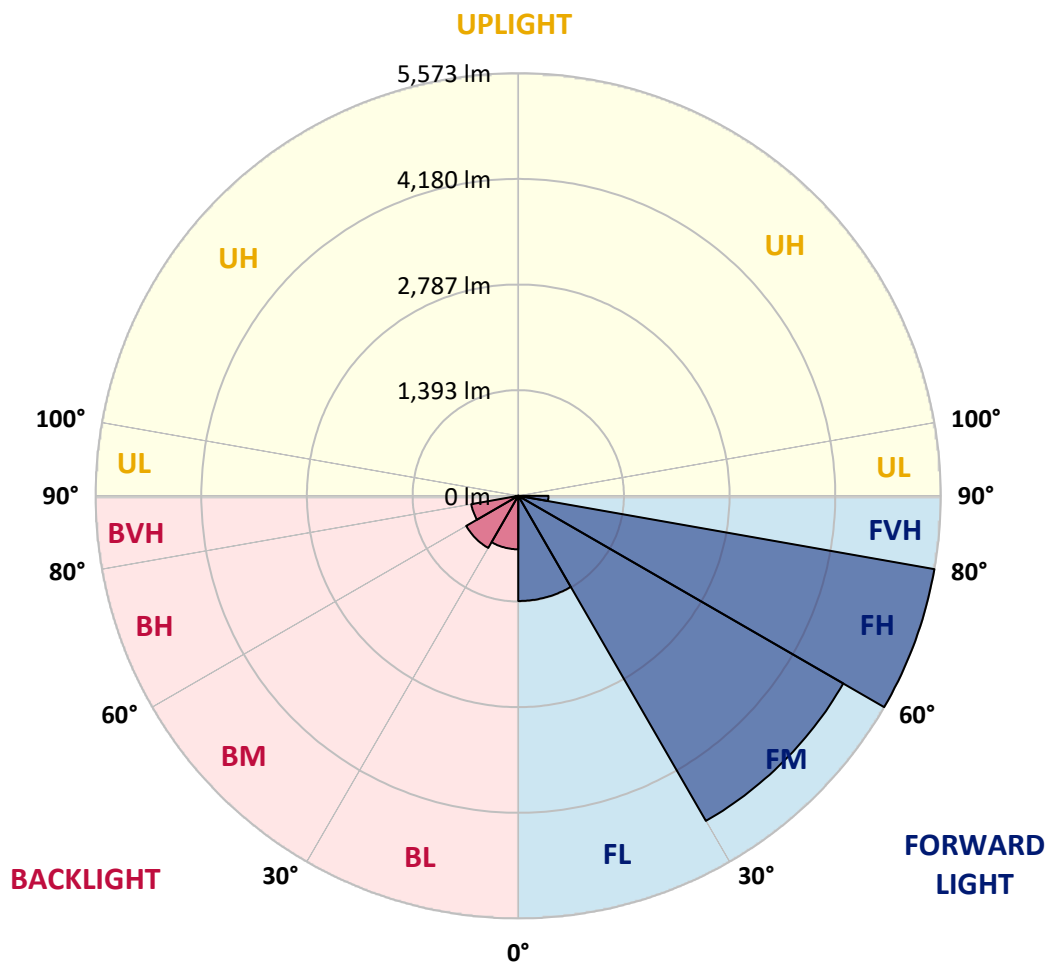
CATALOG NUMBER: GLEON-SA2C-760-U-SL3

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 1387.5 | 9.6       |                         |      |         |
| FM   | (30°-60°)   | 4950.5 | 34.2      |                         |      |         |
| FH   | (60°-80°)   | 5573.4 | 38.5      |                         |      | G3/7500 |
| FVH  | (80°-90°)   | 397.9  | 2.7       |                         |      | G3/500  |
| BL   | (0°-30°)    | 705.3  | 4.9       | B2/1000                 |      |         |
| BM   | (30°-60°)   | 793.5  | 5.5       | B1/1000                 |      |         |
| BH   | (60°-80°)   | 628.9  | 4.3       | B2/1000                 |      | G2/1000 |
| BVH  | (80°-90°)   | 36.1   | 0.2       |                         |      | G1/100  |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B2-U0-G3**

Type III Medium





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CATALOG NUMBER: GLEON-SA2C-760-U-SL3

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°     | 58°     | 65°     | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|---------|---------|---------|--------|--------|
| 0°    | 4010.0 | 4010.0 | 4010.0 | 4010.0 | 4010.0 | 4010.0 | 4010.0  | 4010.0  | 4010.0  | 4010.0 | 4010.0 |
| 2.5°  | 4116.4 | 4110.8 | 4112.8 | 4108.8 | 4099.2 | 4089.6 | 4075.5  | 4078.0  | 4058.4  | 4029.1 | 3992.8 |
| 5°    | 4038.7 | 4036.7 | 4051.8 | 4060.4 | 4067.5 | 4061.9 | 4057.9  | 4062.9  | 4034.2  | 3993.9 | 3930.8 |
| 7.5°  | 3875.9 | 3853.7 | 3872.9 | 3901.6 | 3928.8 | 3949.5 | 3976.7  | 3980.2  | 3962.1  | 3919.7 | 3837.1 |
| 10°   | 3644.5 | 3623.3 | 3651.5 | 3696.4 | 3750.9 | 3800.3 | 3855.2  | 3865.3  | 3868.8  | 3830.5 | 3730.2 |
| 12.5° | 3404.5 | 3388.4 | 3416.6 | 3479.6 | 3569.9 | 3646.0 | 3733.7  | 3748.8  | 3780.1  | 3754.4 | 3631.4 |
| 15°   | 3189.7 | 3183.7 | 3218.0 | 3280.0 | 3383.8 | 3500.3 | 3626.8  | 3654.6  | 3707.5  | 3698.9 | 3554.2 |
| 17.5° | 3004.2 | 3002.7 | 3028.9 | 3094.0 | 3208.9 | 3356.1 | 3520.5  | 3567.3  | 3646.0  | 3656.1 | 3490.7 |
| 20°   | 2866.1 | 2863.1 | 2881.2 | 2929.1 | 3047.6 | 3214.4 | 3405.5  | 3470.0  | 3583.5  | 3618.8 | 3425.2 |
| 22.5° | 2792.0 | 2791.5 | 2792.0 | 2814.7 | 2911.5 | 3066.7 | 3293.6  | 3372.2  | 3522.5  | 3589.0 | 3352.6 |
| 25°   | 2779.4 | 2777.9 | 2766.8 | 2764.2 | 2819.2 | 2943.2 | 3182.7  | 3269.4  | 3464.5  | 3568.4 | 3283.5 |
| 27.5° | 2812.1 | 2814.2 | 2799.5 | 2775.8 | 2786.9 | 2862.0 | 3086.4  | 3179.2  | 3418.1  | 3564.3 | 3235.6 |
| 30°   | 2880.2 | 2879.2 | 2866.6 | 2841.9 | 2820.2 | 2831.8 | 3017.8  | 3110.6  | 3386.9  | 3582.0 | 3202.8 |
| 32.5° | 2955.3 | 2960.9 | 2958.3 | 2944.7 | 2912.5 | 2866.1 | 2997.2  | 3087.9  | 3377.8  | 3624.3 | 3188.7 |
| 35°   | 3045.6 | 3051.6 | 3069.8 | 3080.3 | 3042.5 | 2967.9 | 3041.5  | 3120.2  | 3404.0  | 3704.0 | 3211.4 |
| 37.5° | 3131.3 | 3146.9 | 3197.8 | 3242.7 | 3210.4 | 3127.2 | 3159.5  | 3215.5  | 3485.2  | 3829.5 | 3272.4 |
| 40°   | 3230.1 | 3243.7 | 3326.9 | 3422.2 | 3417.1 | 3330.9 | 3349.6  | 3386.9  | 3628.3  | 4009.5 | 3382.8 |
| 42.5° | 3327.4 | 3354.6 | 3475.1 | 3610.2 | 3649.0 | 3572.9 | 3602.6  | 3622.3  | 3830.0  | 4247.9 | 3575.4 |
| 45°   | 3456.9 | 3486.2 | 3653.6 | 3816.4 | 3907.1 | 3864.3 | 3911.7  | 3919.2  | 4083.6  | 4572.6 | 3855.2 |
| 47.5° | 3653.1 | 3686.3 | 3881.4 | 4052.3 | 4191.0 | 4195.5 | 4273.7  | 4270.6  | 4400.2  | 4944.2 | 4207.6 |
| 50°   | 3958.6 | 4006.5 | 4166.3 | 4326.1 | 4494.5 | 4588.2 | 4692.6  | 4678.0  | 4779.8  | 5339.9 | 4613.5 |
| 52.5° | 4358.9 | 4381.0 | 4499.5 | 4617.5 | 4826.7 | 5036.9 | 5186.7  | 5173.6  | 5210.4  | 5746.8 | 5074.2 |
| 55°   | 4773.8 | 4790.4 | 4839.3 | 4903.8 | 5185.2 | 5528.0 | 5844.6  | 5823.9  | 5730.6  | 6169.3 | 5529.5 |
| 57.5° | 5146.8 | 5180.6 | 5214.4 | 5241.1 | 5546.1 | 6041.2 | 6517.6  | 6519.1  | 6295.3  | 6625.0 | 5999.9 |
| 60°   | 5204.8 | 5234.6 | 5457.9 | 5668.6 | 6163.7 | 6725.8 | 7238.0  | 7222.9  | 6879.6  | 7119.6 | 6524.2 |
| 62.5° | 4600.8 | 4667.9 | 5041.0 | 5601.6 | 6758.6 | 7978.1 | 8157.1  | 8138.5  | 7578.3  | 7729.1 | 7134.7 |
| 65°   | 3297.1 | 3373.3 | 3823.5 | 4665.9 | 6470.2 | 9358.0 | 9815.8  | 9564.7  | 8531.2  | 8478.8 | 7849.6 |
| 67.5° | 1902.1 | 1920.3 | 2115.4 | 2792.0 | 4926.5 | 9430.1 | 12346.1 | 11994.7 | 10010.9 | 9329.2 | 8199.5 |
| 70°   | 1406.6 | 1406.1 | 1452.4 | 1718.1 | 2665.9 | 7696.3 | 13549.5 | 13864.6 | 11568.7 | 9609.0 | 7704.9 |
| 71°   | 1272.0 | 1273.5 | 1325.4 | 1563.9 | 2111.4 | 6442.0 | 13293.9 | 13983.5 | 11979.0 | 9470.9 | 7346.9 |
| 72.5° | 1088.0 | 1093.0 | 1165.1 | 1402.5 | 1776.1 | 4442.5 | 12192.8 | 13269.7 | 12173.6 | 9130.1 | 6786.8 |
| 75°   | 825.3  | 836.9  | 936.7  | 1182.2 | 1623.4 | 2253.0 | 8948.6  | 10596.2 | 10814.5 | 8056.3 | 5043.0 |
| 77.5° | 588.8  | 602.0  | 714.9  | 994.2  | 1543.2 | 1698.0 | 5992.8  | 7729.1  | 7958.5  | 5163.0 | 2274.7 |
| 80°   | 372.1  | 387.7  | 472.9  | 791.0  | 1449.9 | 1612.3 | 3766.0  | 5195.2  | 4339.7  | 1652.1 | 578.8  |
| 82.5° | 218.3  | 230.4  | 293.4  | 516.8  | 1184.2 | 1552.8 | 2215.7  | 2879.7  | 1688.9  | 499.1  | 263.2  |
| 85°   | 126.5  | 132.1  | 183.0  | 329.2  | 860.1  | 1465.6 | 1627.9  | 1609.7  | 733.0   | 244.0  | 124.5  |
| 87.5° | 59.0   | 65.5   | 108.4  | 171.9  | 477.4  | 1062.2 | 1286.6  | 1111.6  | 455.7   | 114.4  | 58.5   |
| 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-SA2C-760-U-SL3

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 4010.0 | 4010.0 | 4010.0 | 4010.0 | 4010.0 | 4010.0 | 4010.0 | 4010.0 | 4010.0 | 4010.0 | 4010.0 |
| 2.5°  | 3975.2 | 3966.6 | 3930.8 | 3899.1 | 3865.8 | 3822.4 | 3774.6 | 3768.5 | 3739.3 | 3744.8 | 3734.7 |
| 5°    | 3896.6 | 3874.9 | 3788.7 | 3710.5 | 3618.3 | 3535.6 | 3445.8 | 3404.5 | 3345.0 | 3341.0 | 3325.9 |
| 7.5°  | 3784.1 | 3743.8 | 3610.2 | 3462.0 | 3313.8 | 3172.6 | 3033.0 | 2941.2 | 2847.4 | 2807.6 | 2804.1 |
| 10°   | 3657.6 | 3589.0 | 3392.4 | 3173.1 | 2959.3 | 2753.1 | 2553.5 | 2405.8 | 2272.7 | 2209.7 | 2207.2 |
| 12.5° | 3537.6 | 3436.3 | 3166.5 | 2868.1 | 2575.7 | 2308.5 | 2034.7 | 1840.6 | 1673.8 | 1617.8 | 1594.1 |
| 15°   | 3435.8 | 3293.1 | 2946.7 | 2565.1 | 2210.2 | 1839.1 | 1527.6 | 1323.4 | 1169.1 | 1115.7 | 1105.6 |
| 17.5° | 3337.0 | 3153.4 | 2721.4 | 2259.1 | 1830.1 | 1422.2 | 1110.1 | 958.4  | 876.2  | 854.5  | 854.0  |
| 20°   | 3238.6 | 3009.8 | 2486.0 | 1946.0 | 1462.5 | 1063.8 | 853.5  | 785.5  | 757.7  | 755.2  | 751.2  |
| 22.5° | 3127.2 | 2857.5 | 2238.4 | 1631.9 | 1141.4 | 836.4  | 725.5  | 698.2  | 694.7  | 703.8  | 703.8  |
| 25°   | 3022.9 | 2706.3 | 1987.3 | 1324.4 | 887.8  | 697.7  | 647.8  | 642.3  | 651.9  | 668.0  | 669.5  |
| 27.5° | 2925.6 | 2560.6 | 1742.3 | 1051.1 | 711.4  | 614.6  | 593.9  | 600.4  | 617.6  | 636.2  | 636.7  |
| 30°   | 2845.4 | 2422.9 | 1504.4 | 828.3  | 600.9  | 552.5  | 549.0  | 562.1  | 580.8  | 595.4  | 598.9  |
| 32.5° | 2783.4 | 2305.5 | 1274.5 | 666.0  | 528.9  | 506.2  | 509.2  | 520.3  | 531.9  | 539.9  | 545.5  |
| 35°   | 2754.7 | 2204.6 | 1062.2 | 561.6  | 483.0  | 470.4  | 474.4  | 480.5  | 485.5  | 491.5  | 496.1  |
| 37.5° | 2759.7 | 2126.5 | 872.7  | 496.6  | 452.2  | 445.7  | 445.7  | 445.7  | 445.7  | 448.7  | 449.2  |
| 40°   | 2806.6 | 2081.6 | 718.4  | 455.2  | 431.6  | 424.5  | 418.9  | 413.9  | 409.9  | 411.9  | 410.9  |
| 42.5° | 2926.6 | 2077.6 | 605.5  | 429.0  | 414.9  | 403.3  | 392.2  | 385.2  | 380.1  | 382.1  | 383.2  |
| 45°   | 3130.3 | 2128.0 | 529.4  | 410.4  | 399.3  | 381.6  | 367.5  | 360.0  | 356.4  | 363.0  | 364.0  |
| 47.5° | 3393.9 | 2237.9 | 483.0  | 396.8  | 384.7  | 361.5  | 346.3  | 339.3  | 340.3  | 349.9  | 352.4  |
| 50°   | 3733.7 | 2416.4 | 460.8  | 388.2  | 374.6  | 344.3  | 328.7  | 322.7  | 325.7  | 339.3  | 342.3  |
| 52.5° | 4106.8 | 2673.5 | 463.3  | 385.7  | 368.0  | 331.7  | 315.1  | 308.0  | 313.1  | 325.7  | 328.2  |
| 55°   | 4537.3 | 2982.5 | 505.2  | 389.2  | 358.4  | 323.7  | 304.0  | 291.9  | 295.9  | 307.5  | 309.5  |
| 57.5° | 5015.8 | 3336.4 | 589.3  | 388.2  | 346.3  | 316.1  | 292.4  | 274.3  | 277.3  | 284.3  | 286.4  |
| 60°   | 5513.9 | 3764.0 | 719.9  | 391.2  | 340.8  | 307.0  | 276.8  | 254.1  | 253.1  | 259.1  | 260.1  |
| 62.5° | 6111.8 | 4258.5 | 869.2  | 393.2  | 344.3  | 295.4  | 256.1  | 233.9  | 230.9  | 232.4  | 233.4  |
| 65°   | 6727.8 | 4616.5 | 813.2  | 385.2  | 355.4  | 285.9  | 238.0  | 214.3  | 208.7  | 207.7  | 208.2  |
| 67.5° | 6747.0 | 4232.8 | 570.2  | 369.0  | 360.0  | 280.8  | 224.3  | 197.6  | 188.6  | 185.0  | 184.5  |
| 70°   | 6050.8 | 3438.8 | 444.2  | 351.9  | 341.8  | 272.7  | 211.7  | 184.0  | 170.4  | 164.9  | 164.4  |
| 71°   | 5711.0 | 3165.5 | 421.0  | 343.3  | 328.2  | 264.7  | 206.2  | 178.0  | 163.8  | 157.8  | 156.8  |
| 72.5° | 5178.1 | 2837.8 | 392.7  | 329.7  | 302.0  | 244.0  | 195.6  | 169.4  | 154.8  | 147.7  | 146.2  |
| 75°   | 3716.1 | 1855.8 | 337.3  | 293.9  | 250.1  | 194.6  | 171.4  | 152.3  | 139.6  | 131.1  | 130.1  |
| 77.5° | 1431.8 | 738.6  | 255.1  | 244.5  | 191.6  | 152.3  | 141.2  | 131.6  | 122.5  | 113.9  | 113.4  |
| 80°   | 442.6  | 330.2  | 186.0  | 184.0  | 138.6  | 113.4  | 109.9  | 107.4  | 103.9  | 94.8   | 92.8   |
| 82.5° | 236.4  | 189.6  | 128.1  | 119.0  | 90.7   | 75.6   | 79.7   | 80.7   | 81.2   | 71.6   | 70.6   |
| 85°   | 112.9  | 100.3  | 72.1   | 67.6   | 52.9   | 42.3   | 48.9   | 52.9   | 53.4   | 43.9   | 40.8   |
| 87.5° | 53.9   | 52.4   | 33.8   | 25.7   | 19.7   | 14.1   | 17.1   | 21.2   | 23.2   | 16.6   | 14.6   |
| 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: SP1-1908-441-9-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:  $4\pi$   
 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 |      |       |
| CIE u':                   | 0.2052 | R1:       | 70.6 | R9:  | -27.1 |
| CIE v':                   | 0.4804 | R2:       | 74.6 | R10: | 40.8  |
| Duv:                      | 0.0025 | R3:       | 78.3 | R11: | 74.6  |
| CIE x:                    | 0.3330 | R4:       | 73.8 | R12: | 50.4  |
| CIE y:                    | 0.3466 | R5:       | 72.4 | R13: | 70.0  |
| CIE z:                    | 0.3204 | R6:       | 67.5 | R14: | 87.8  |
| 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

REPORT NUMBER: SP1-1908-441-9-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 5700K 4-step quadrangle

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**Photopic Flux vs. Wavelength**



#####

| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(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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Scotopic Flux vs. Wavelength



Scotopic Lumens: 13759.3

S/P: 1.85

| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(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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**Melanopic Flux vs. Wavelength**



**Melanopic Lumens: 5527.6 M/P: 0.74**

| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(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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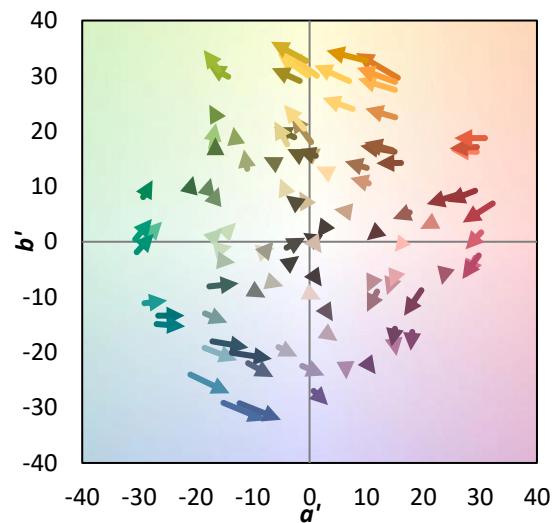
**TM-30-18**

**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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**TM-30-18**

Color Rendition by Hue-Angle Bin



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**Measure Comparisons**



(END OF REPORT)