

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: P322491

Luminaire Tested: **GLEON-SA7C-727-U-T4FT-HSS**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P322491
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-17)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: GLEON-SA7C-727-U-T4FT-HSS
Description: GALLEON AREA AND ROADWAY LUMINAIRE
(7) 70 CRI, 2700K, 1050mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV
FORWARD THROW OPTICS WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 29712 lumens
Efficiency: N/A
Efficacy: 76.0 lumens/watt
Luminous Opening: Rectangular (W 2' x L: 1' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B2 - U0 - G5

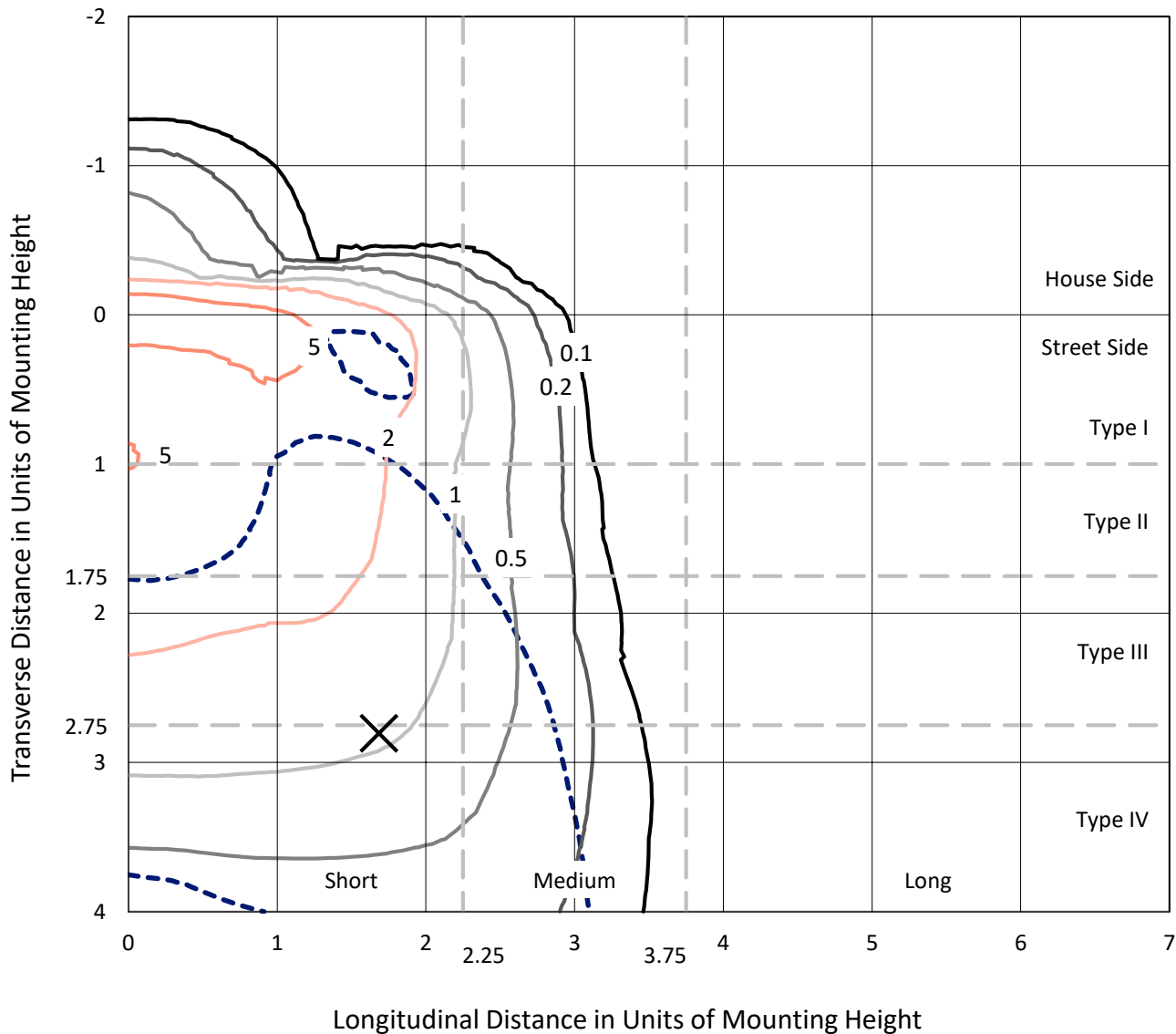
Input Watts (W): 391
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



REPORT NUMBER: P322491
 CATALOG NUMBER: GLEON-SA7C-727-U-T4FT-HSS

Iso-Footcandle Lines of Horizontal Illumination

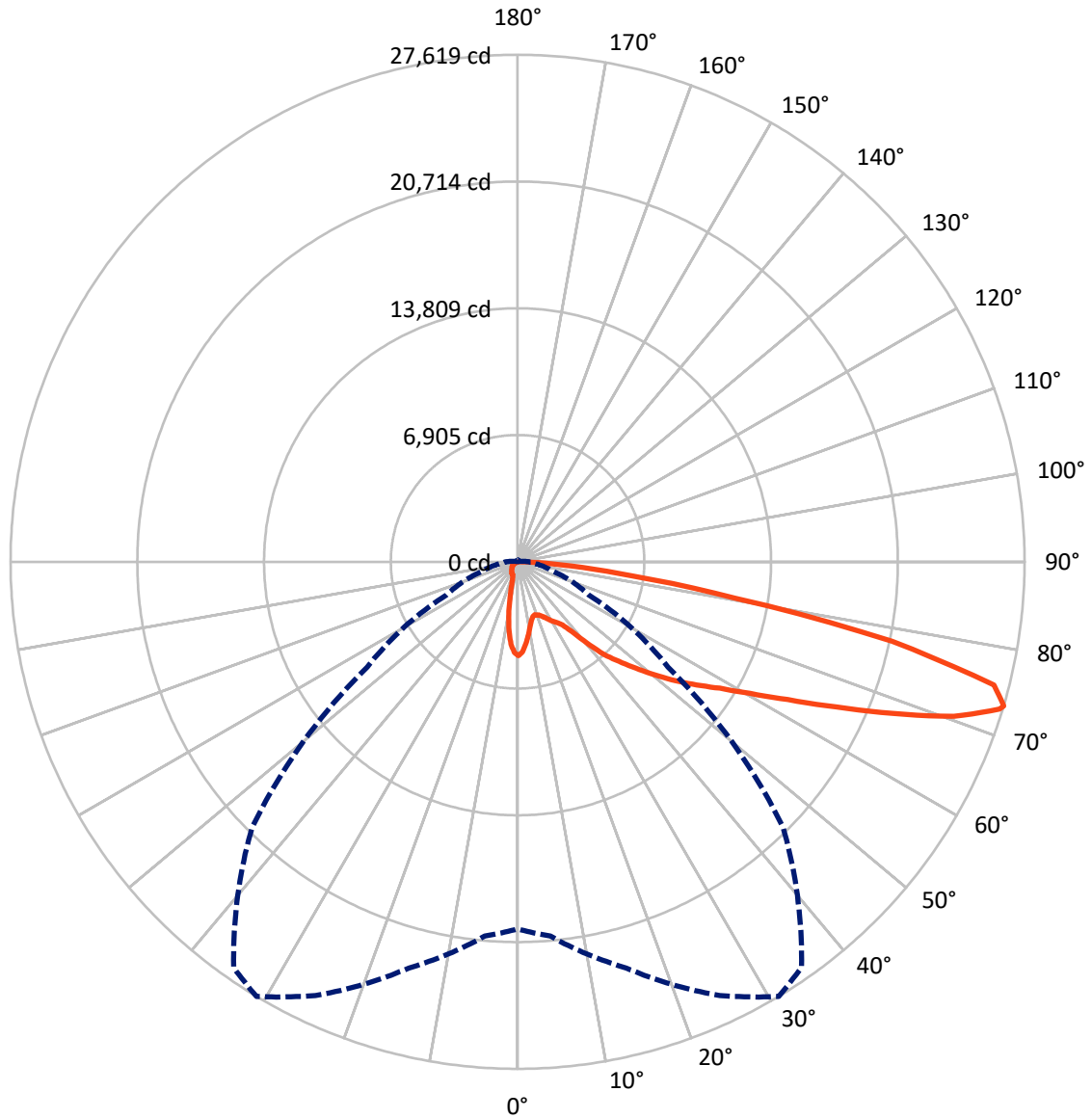
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 8.2 fc
 Type IV - Short - N/A

REPORT NUMBER: P322491
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Luminous Intensity Polar Plot



— Vertical Plane Through 31-Deg Lateral - - - Horizontal Cone Through 73-Deg Vertical

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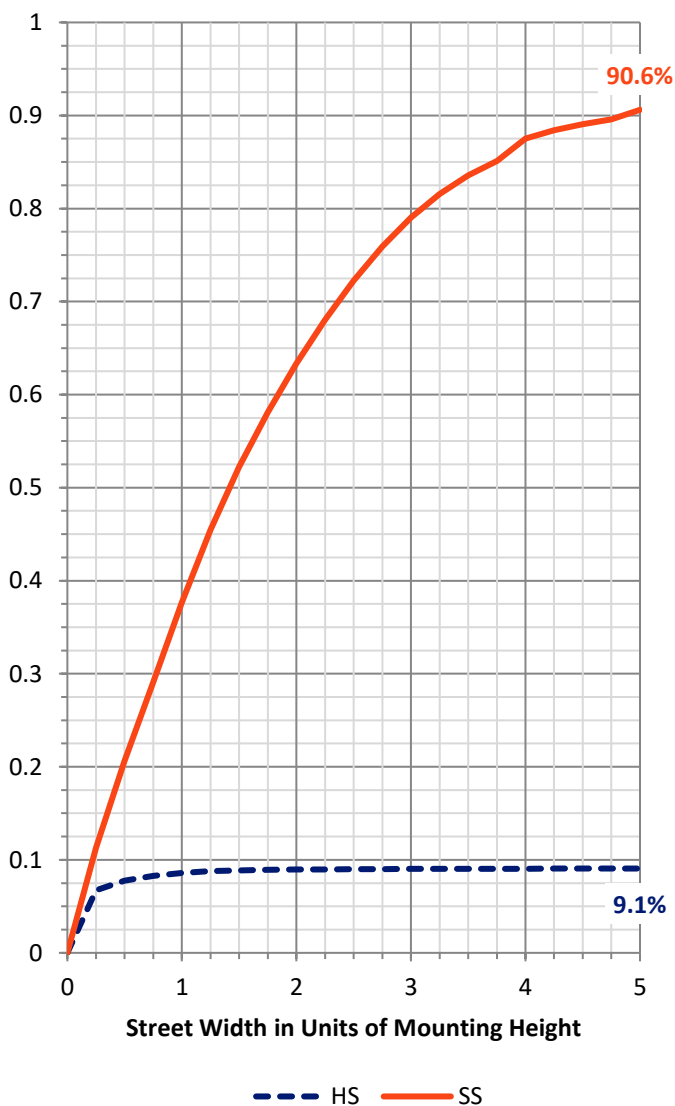
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 2708.4 | 0.0 | 2708.4 |
| | % Fixture | 9.1 | 0.0 | 9.1 |
| Street Side | Lumens | 27003.6 | 0.0 | 27003.6 |
| | % Fixture | 90.9 | 0.0 | 90.9 |
| Total | Lumens | 29712.0 | 0.0 | 29712.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 423.9 | 1.4 |
| 10°-20° | 920.3 | 3.1 |
| 20°-30° | 1378.9 | 4.6 |
| 30°-40° | 2193.8 | 7.4 |
| 40°-50° | 3917.6 | 13.2 |
| 50°-60° | 6079.0 | 20.5 |
| 60°-70° | 8081.1 | 27.2 |
| 70°-80° | 6078.7 | 20.5 |
| 80°-90° | 638.7 | 2.1 |
| 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° | 29712.0 | 100.0 |
| 0°-180° | 29712.0 | 100.0 |

Coefficient of Utilization

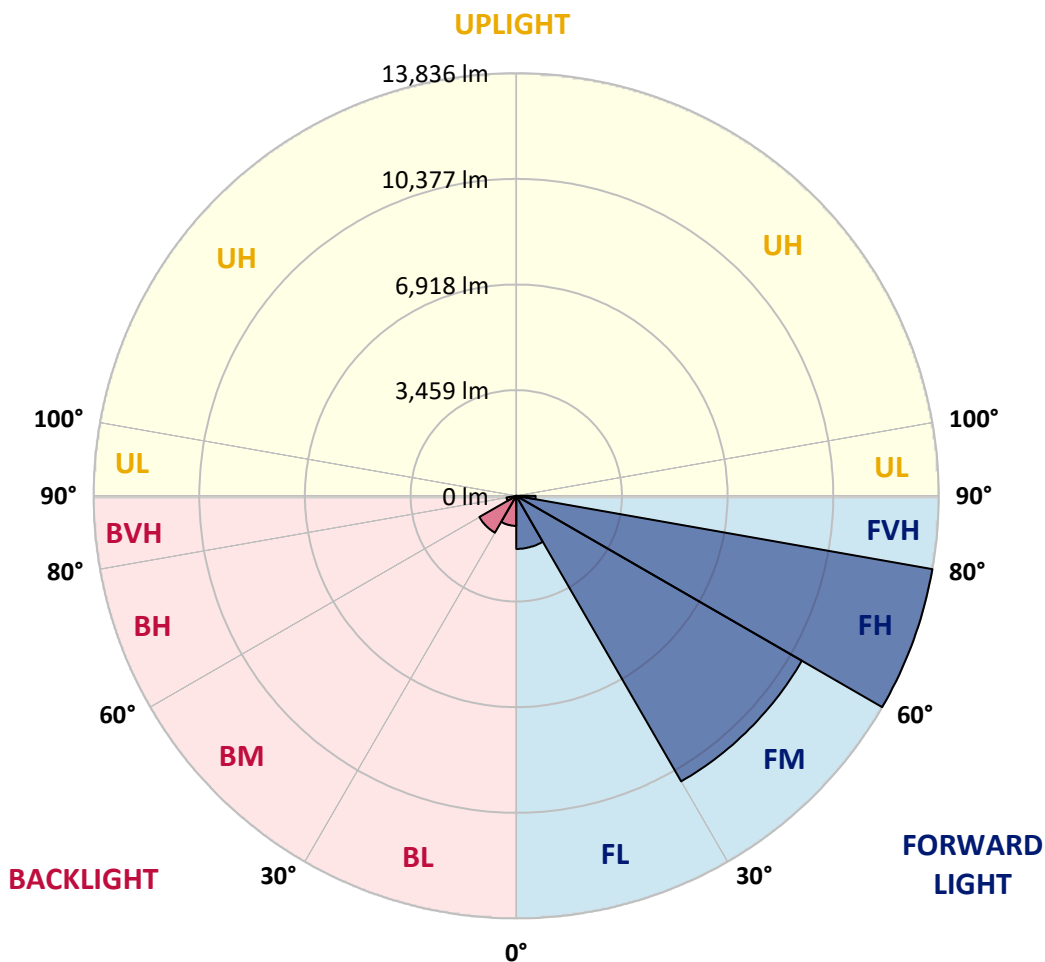


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|---------|-----------|-------------------------|------|--------|
| | | | B | U | G |
| FL (0°-30°) | 1738.2 | 5.9 | | | |
| FM (30°-60°) | 10796.3 | 36.3 | | | |
| FH (60°-80°) | 13835.8 | 46.6 | | | G5 |
| FVH (80°-90°) | 633.4 | 2.1 | | | G4/750 |
| BL (0°-30°) | 984.9 | 3.3 | B2/1000 | | |
| BM (30°-60°) | 1394.1 | 4.7 | B2/2500 | | |
| BH (60°-80°) | 324.0 | 1.1 | B1/500 | | G1/500 |
| BVH (80°-90°) | 5.4 | 0.0 | | | G0/10 |
| 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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CATALOG NUMBER: GLEON-SA7C-727-U-T4FT-HSS

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 31° | 35° | 45° | 55° | 65° | 75° | 85° |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0° | 5112.0 | 5112.0 | 5112.0 | 5112.0 | 5112.0 | 5112.0 | 5112.0 | 5112.0 | 5112.0 | 5112.0 | 5112.0 |
| 2.5° | 4844.5 | 4864.8 | 4886.7 | 4891.0 | 4927.4 | 4928.8 | 4981.2 | 5020.4 | 5059.7 | 5097.5 | 5110.6 |
| 5° | 4347.2 | 4380.7 | 4419.9 | 4459.2 | 4536.3 | 4566.8 | 4694.7 | 4825.6 | 4950.6 | 5069.8 | 5128.0 |
| 7.5° | 3816.6 | 3854.4 | 3909.6 | 4007.0 | 4092.8 | 4152.4 | 4354.5 | 4587.1 | 4819.8 | 5039.3 | 5165.8 |
| 10° | 3332.4 | 3367.3 | 3425.5 | 3528.7 | 3661.0 | 3742.4 | 4014.3 | 4337.1 | 4678.7 | 5011.7 | 5222.5 |
| 12.5° | 3024.2 | 3043.1 | 3075.1 | 3185.6 | 3304.8 | 3396.4 | 3716.2 | 4116.1 | 4562.4 | 5010.2 | 5314.1 |
| 15° | 2967.5 | 2973.3 | 2947.1 | 2996.5 | 3089.6 | 3178.3 | 3502.5 | 3937.2 | 4473.7 | 5033.5 | 5433.3 |
| 17.5° | 3057.6 | 3054.7 | 2967.5 | 2961.7 | 3035.8 | 3108.5 | 3397.8 | 3813.7 | 4411.2 | 5087.3 | 5587.4 |
| 20° | 3194.3 | 3184.1 | 3032.9 | 3005.3 | 3083.8 | 3152.1 | 3390.6 | 3767.1 | 4388.0 | 5177.4 | 5775.0 |
| 22.5° | 3376.0 | 3358.6 | 3121.6 | 3092.5 | 3176.8 | 3248.1 | 3480.7 | 3812.2 | 4408.3 | 5298.1 | 5993.1 |
| 25° | 3601.4 | 3575.2 | 3274.2 | 3242.3 | 3328.0 | 3399.3 | 3642.1 | 3941.6 | 4469.4 | 5445.0 | 6269.3 |
| 27.5° | 3855.8 | 3818.0 | 3518.5 | 3435.6 | 3533.0 | 3607.2 | 3857.3 | 4139.3 | 4565.3 | 5600.5 | 6608.1 |
| 30° | 4095.7 | 4046.3 | 3775.9 | 3639.2 | 3758.4 | 3841.3 | 4089.9 | 4374.9 | 4719.4 | 5840.4 | 7071.9 |
| 32.5° | 4337.1 | 4281.8 | 4005.6 | 3842.7 | 3950.3 | 4040.5 | 4329.8 | 4699.1 | 5008.8 | 6206.8 | 7688.4 |
| 35° | 4892.5 | 4834.3 | 4495.5 | 4226.6 | 4225.1 | 4276.0 | 4665.7 | 5142.5 | 5391.2 | 6717.1 | 8424.1 |
| 37.5° | 5827.3 | 5793.9 | 5471.1 | 4960.8 | 4824.1 | 4767.4 | 5123.6 | 5671.8 | 5940.7 | 7419.4 | 9254.3 |
| 40° | 6850.9 | 6821.8 | 6459.8 | 5997.5 | 5789.5 | 5650.0 | 5780.8 | 6408.9 | 6717.1 | 8277.2 | 10101.9 |
| 42.5° | 8006.8 | 7868.7 | 7223.1 | 7085.0 | 6898.9 | 6792.8 | 6675.0 | 7317.6 | 7670.9 | 9210.6 | 10942.3 |
| 45° | 9056.5 | 8823.9 | 7986.4 | 7777.1 | 7734.9 | 7761.1 | 7826.5 | 8538.9 | 8743.9 | 10320.0 | 11779.7 |
| 47.5° | 9681.7 | 9498.5 | 8855.9 | 8655.2 | 8643.6 | 8816.6 | 9311.0 | 9918.7 | 9812.6 | 11286.8 | 12516.9 |
| 50° | 10276.4 | 10110.6 | 9577.0 | 9626.5 | 9680.3 | 9915.8 | 10996.1 | 11337.7 | 10788.1 | 12163.6 | 13192.9 |
| 52.5° | 10757.6 | 10504.6 | 10225.5 | 10503.2 | 10767.8 | 11147.3 | 12735.0 | 12611.4 | 11480.2 | 12861.4 | 13771.6 |
| 55° | 11035.3 | 10920.5 | 11055.7 | 11334.8 | 11832.1 | 12448.5 | 14376.4 | 13671.3 | 11986.2 | 13498.3 | 14156.9 |
| 57.5° | 12053.1 | 11827.7 | 12096.7 | 12338.0 | 12986.5 | 13848.7 | 15782.4 | 14460.8 | 12351.1 | 13892.3 | 14245.6 |
| 60° | 13284.5 | 13102.8 | 13261.3 | 13662.6 | 14537.8 | 15551.2 | 17096.7 | 15104.9 | 12541.6 | 14145.3 | 14015.9 |
| 62.5° | 15244.4 | 15004.5 | 14905.7 | 15354.9 | 16515.2 | 17621.6 | 18094.1 | 15551.2 | 12499.4 | 14033.3 | 13227.8 |
| 65° | 17870.2 | 17621.6 | 17179.6 | 17586.7 | 19062.4 | 19843.2 | 19209.3 | 15645.7 | 12208.6 | 13127.5 | 11236.0 |
| 67.5° | 20560.0 | 20379.7 | 20001.7 | 20687.9 | 22019.7 | 22271.3 | 20388.4 | 15416.0 | 11272.3 | 10644.2 | 7938.4 |
| 70° | 22336.7 | 22259.6 | 22505.3 | 24023.3 | 25211.1 | 25138.4 | 21470.2 | 14181.6 | 8786.1 | 6545.6 | 3927.1 |
| 72.5° | 21055.8 | 21425.1 | 23239.6 | 25991.9 | 27442.9 | 26849.7 | 20914.8 | 10889.9 | 5021.9 | 2518.2 | 1135.5 |
| 73° | 19994.4 | 20466.9 | 22909.5 | 26066.0 | 27618.8 | 26968.9 | 20448.0 | 9995.8 | 4280.4 | 1987.5 | 860.7 |
| 75° | 13909.7 | 14489.8 | 18966.5 | 24276.2 | 26795.9 | 25695.3 | 17044.4 | 6118.1 | 1983.2 | 881.1 | 347.5 |
| 77.5° | 6753.5 | 7182.4 | 10443.6 | 17540.2 | 20839.1 | 20075.8 | 10610.8 | 2279.8 | 895.6 | 551.0 | 159.9 |
| 80° | 2521.1 | 2803.2 | 4533.3 | 8927.1 | 12042.9 | 12358.4 | 4667.1 | 862.2 | 596.1 | 443.4 | 81.4 |
| 82.5° | 660.1 | 735.7 | 1672.0 | 3980.9 | 6171.9 | 6459.8 | 1471.4 | 434.7 | 436.2 | 364.9 | 49.4 |
| 85° | 210.8 | 241.4 | 522.0 | 1786.9 | 2907.9 | 2553.1 | 383.8 | 210.8 | 317.0 | 271.9 | 27.6 |
| 87.5° | 26.2 | 33.4 | 165.7 | 420.2 | 641.2 | 356.2 | 59.6 | 62.5 | 135.2 | 151.2 | 16.0 |
| 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: P322491

CATALOG NUMBER: GLEON-SA7C-727-U-T4FT-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 5112.0 | 5112.0 | 5112.0 | 5112.0 | 5112.0 | 5112.0 | 5112.0 | 5112.0 | 5112.0 | 5112.0 | 5112.0 |
| 2.5° | 5123.6 | 5116.4 | 5117.8 | 5080.0 | 5055.3 | 5005.9 | 4955.0 | 4931.7 | 4907.0 | 4896.8 | 4907.0 |
| 5° | 5149.8 | 5136.7 | 5098.9 | 4982.6 | 4859.0 | 4699.1 | 4549.3 | 4435.9 | 4293.4 | 4254.2 | 4294.9 |
| 7.5° | 5190.5 | 5164.4 | 5053.9 | 4816.9 | 4542.1 | 4236.7 | 3893.6 | 3643.5 | 3438.5 | 3306.2 | 3354.2 |
| 10° | 5250.1 | 5200.7 | 4978.2 | 4575.5 | 4084.1 | 3543.2 | 3056.2 | 2676.7 | 2407.7 | 2297.2 | 2292.8 |
| 12.5° | 5350.5 | 5257.4 | 4885.2 | 4261.5 | 3524.3 | 2803.2 | 2164.9 | 1753.4 | 1535.3 | 1394.3 | 1391.4 |
| 15° | 5461.0 | 5324.3 | 4767.4 | 3884.9 | 2873.0 | 2007.9 | 1394.3 | 1081.7 | 940.7 | 895.6 | 889.8 |
| 17.5° | 5596.2 | 5401.3 | 4614.8 | 3421.1 | 2191.1 | 1330.3 | 910.2 | 820.0 | 814.2 | 809.8 | 809.8 |
| 20° | 5766.3 | 5492.9 | 4418.5 | 2890.4 | 1554.2 | 888.3 | 773.5 | 779.3 | 782.2 | 776.4 | 777.9 |
| 22.5° | 5964.0 | 5586.0 | 4184.4 | 2320.5 | 1051.2 | 743.0 | 740.0 | 747.3 | 750.2 | 747.3 | 748.8 |
| 25° | 6193.7 | 5693.6 | 3899.4 | 1722.9 | 759.0 | 705.2 | 712.4 | 722.6 | 729.9 | 729.9 | 729.9 |
| 27.5° | 6478.7 | 5824.4 | 3556.3 | 1202.4 | 655.7 | 665.9 | 686.3 | 705.2 | 715.3 | 718.2 | 718.2 |
| 30° | 6849.5 | 5987.3 | 3144.8 | 824.4 | 596.1 | 613.6 | 651.4 | 687.7 | 706.6 | 709.5 | 711.0 |
| 32.5° | 7317.6 | 6170.5 | 2668.0 | 609.2 | 545.2 | 558.3 | 599.0 | 660.1 | 696.4 | 702.2 | 702.2 |
| 35° | 7854.1 | 6382.7 | 2154.7 | 530.7 | 508.9 | 513.2 | 545.2 | 615.0 | 679.0 | 695.0 | 696.4 |
| 37.5° | 8441.5 | 6592.1 | 1638.6 | 495.8 | 478.3 | 478.3 | 501.6 | 561.2 | 636.8 | 686.3 | 692.1 |
| 40° | 8989.6 | 6718.6 | 1148.6 | 468.2 | 450.7 | 450.7 | 471.1 | 514.7 | 585.9 | 660.1 | 676.1 |
| 42.5° | 9495.6 | 6762.2 | 799.7 | 442.0 | 424.5 | 428.9 | 446.4 | 481.3 | 535.0 | 609.2 | 623.7 |
| 45° | 10016.1 | 6754.9 | 583.0 | 411.5 | 398.4 | 411.5 | 424.5 | 450.7 | 490.0 | 532.1 | 535.0 |
| 47.5° | 10408.7 | 6693.9 | 462.3 | 382.4 | 373.7 | 391.1 | 402.7 | 420.2 | 442.0 | 439.1 | 439.1 |
| 50° | 10776.5 | 6545.6 | 372.2 | 343.1 | 348.9 | 369.3 | 375.1 | 380.9 | 382.4 | 354.8 | 351.9 |
| 52.5° | 11055.7 | 6314.4 | 298.1 | 301.0 | 324.2 | 344.6 | 338.8 | 330.0 | 315.5 | 282.1 | 276.2 |
| 55° | 11148.7 | 5869.5 | 234.1 | 248.6 | 287.9 | 314.0 | 292.2 | 273.3 | 245.7 | 218.1 | 212.3 |
| 57.5° | 10980.1 | 5295.2 | 190.5 | 193.4 | 242.8 | 264.6 | 239.9 | 218.1 | 187.6 | 164.3 | 159.9 |
| 60° | 10622.4 | 4656.9 | 157.0 | 145.4 | 187.6 | 206.5 | 190.5 | 168.7 | 141.0 | 123.6 | 122.1 |
| 62.5° | 9912.9 | 3976.5 | 129.4 | 113.4 | 142.5 | 158.5 | 148.3 | 132.3 | 109.0 | 97.4 | 96.0 |
| 65° | 8421.2 | 3181.2 | 104.7 | 91.6 | 110.5 | 123.6 | 114.9 | 103.2 | 85.8 | 77.1 | 75.6 |
| 67.5° | 5878.2 | 2150.4 | 85.8 | 75.6 | 87.2 | 97.4 | 90.1 | 84.3 | 68.3 | 66.9 | 68.3 |
| 70° | 2835.2 | 1036.7 | 71.2 | 61.1 | 68.3 | 75.6 | 72.7 | 68.3 | 65.4 | 75.6 | 87.2 |
| 72.5° | 812.7 | 347.5 | 56.7 | 50.9 | 55.2 | 59.6 | 62.5 | 61.1 | 71.2 | 91.6 | 106.1 |
| 73° | 625.2 | 280.6 | 53.8 | 48.0 | 52.3 | 58.2 | 61.1 | 59.6 | 72.7 | 93.1 | 106.1 |
| 75° | 267.5 | 135.2 | 40.7 | 39.3 | 43.6 | 50.9 | 53.8 | 53.8 | 72.7 | 94.5 | 101.8 |
| 77.5° | 120.7 | 72.7 | 26.2 | 30.5 | 37.8 | 40.7 | 45.1 | 45.1 | 58.2 | 72.7 | 72.7 |
| 80° | 68.3 | 39.3 | 20.4 | 23.3 | 27.6 | 27.6 | 27.6 | 24.7 | 26.2 | 29.1 | 32.0 |
| 82.5° | 43.6 | 26.2 | 16.0 | 18.9 | 17.4 | 14.5 | 11.6 | 11.6 | 10.2 | 11.6 | 14.5 |
| 85° | 24.7 | 14.5 | 14.5 | 11.6 | 7.3 | 5.8 | 7.3 | 5.8 | 1.5 | 0.0 | 1.5 |
| 87.5° | 14.5 | 8.7 | 4.4 | 0.0 | 0.0 | 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: SP1-1908-441-1-R4

Test Date: 08/20/2019

Luminaire Tested: SA1C-727-U-5WQ

Test Information

Test Method: LM-79-2008
 Report Number: SP1-1908-441-1-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-727-U-5WQ**
 Description: McGRAW EDISON ROADWAY AND AREA LUMINAIRE

THIS IS A REVISION OF SP1-1908-441-1-R3. TO UPDATE THE CATALOG NUMBER.TESTED IN SITU. (1) 70 CRI, 2700K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

Spectral Parameters

CCT (K): 2741
 CIE u': 0.2605
 CIE v': 0.5272
 Duv: 0.0005
 CIE x: 0.4573
 CIE y: 0.4113
 CIE z: 0.1313
 Peak Wavelength (nm): 602
 Dominant Wavelength (nm): 583
 Purity: 61.2

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 71.5 | | |
| R1: | 69.2 | R9: | -16.1 |
| R2: | 79.4 | R10: | 51.4 |
| R3: | 87.8 | R11: | 63.1 |
| R4: | 69.4 | R12: | 42.0 |
| R5: | 66.4 | R13: | 70.2 |
| R6: | 69.8 | R14: | 92.4 |
| R7: | 79.8 | | |
| R8: | 50.1 | | |

Rf: 69.9
 Rg: 98.3



Test Conditions

Stabilization Time: 56M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.3./42%
 Sphere Temperature (°C): 25.7

REPORT NUMBER: SP1-1908-441-1-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: SP1-1908-441-1-R4

CIE 1931 Chromaticity Diagram



CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 2700K 4-step quadrangle

REPORT NUMBER: SP1-1908-441-1-R4

Photopic Flux vs. Wavelength



Photopic Lumens: 6211.7

| 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 | 2044 | 0.0 | 490 | 7179 | 1.0 | 620 | 118034 | 30.7 | 750 | 8362 | 0.0 | 880 | 3128 | 0.0 |
| 365 | 2016 | 0.0 | 495 | 10476 | 1.9 | 625 | 111884 | 24.7 | 755 | 7635 | 0.0 | 885 | 3110 | 0.0 |
| 370 | 2020 | 0.0 | 500 | 15549 | 3.4 | 630 | 106119 | 19.2 | 760 | 6582 | 0.0 | 890 | 2632 | 0.0 |
| 375 | 2137 | 0.0 | 505 | 22477 | 6.3 | 635 | 99706 | 15.0 | 765 | 5777 | 0.0 | 895 | 2709 | 0.0 |
| 380 | 2046 | 0.0 | 510 | 30417 | 10.4 | 640 | 92142 | 11.0 | 770 | 5474 | 0.0 | 900 | 2016 | 0.0 |
| 385 | 1925 | 0.0 | 515 | 39274 | 16.3 | 645 | 84987 | 8.2 | 775 | 4977 | 0.0 | 905 | 1748 | 0.0 |
| 390 | 1893 | 0.0 | 520 | 47282 | 22.9 | 650 | 78016 | 5.7 | 780 | 4723 | 0.0 | 910 | 2046 | 0.0 |
| 395 | 1695 | 0.0 | 525 | 55413 | 29.7 | 655 | 71541 | 4.1 | 785 | 4219 | 0.0 | 915 | 1844 | 0.0 |
| 400 | 1633 | 0.0 | 530 | 62377 | 36.7 | 660 | 64863 | 2.7 | 790 | 3969 | 0.0 | 920 | 2734 | 0.0 |
| 405 | 2065 | 0.0 | 535 | 68520 | 42.5 | 665 | 58485 | 1.9 | 795 | 4122 | 0.0 | 925 | 2307 | 0.0 |
| 410 | 3449 | 0.0 | 540 | 73435 | 47.8 | 670 | 51641 | 1.1 | 800 | 2864 | 0.0 | 930 | 2039 | 0.0 |
| 415 | 7117 | 0.0 | 545 | 78677 | 52.4 | 675 | 46030 | 0.8 | 805 | 3151 | 0.0 | 935 | 1784 | 0.0 |
| 420 | 13992 | 0.0 | 550 | 83331 | 56.6 | 680 | 40590 | 0.5 | 810 | 3022 | 0.0 | 940 | 2464 | 0.0 |
| 425 | 25176 | 0.1 | 555 | 89120 | 60.9 | 685 | 35691 | 0.3 | 815 | 3471 | 0.0 | 945 | 2794 | 0.0 |
| 430 | 38151 | 0.3 | 560 | 94613 | 64.3 | 690 | 31631 | 0.2 | 820 | 2749 | 0.0 | 950 | 3090 | 0.0 |
| 435 | 49673 | 0.6 | 565 | 99818 | 66.4 | 695 | 27437 | 0.1 | 825 | 2729 | 0.0 | 955 | 1866 | 0.0 |
| 440 | 57273 | 0.9 | 570 | 106526 | 69.3 | 700 | 24589 | 0.1 | 830 | 2282 | 0.0 | 960 | 3110 | 0.0 |
| 445 | 54802 | 1.1 | 575 | 111610 | 69.4 | 705 | 21832 | 0.0 | 835 | 3140 | 0.0 | 965 | 3880 | 0.0 |
| 450 | 39184 | 1.0 | 580 | 117163 | 69.6 | 710 | 19500 | 0.0 | 840 | 2365 | 0.0 | 970 | 3243 | 0.0 |
| 455 | 22506 | 0.8 | 585 | 122201 | 67.9 | 715 | 17870 | 0.0 | 845 | 3024 | 0.0 | 975 | 2014 | 0.0 |
| 460 | 13692 | 0.6 | 590 | 125662 | 65.0 | 720 | 15924 | 0.0 | 850 | 2510 | 0.0 | 980 | 1688 | 0.0 |
| 465 | 9446 | 0.5 | 595 | 127415 | 60.4 | 725 | 14268 | 0.0 | 855 | 2739 | 0.0 | 985 | 2827 | 0.0 |
| 470 | 6698 | 0.4 | 600 | 129155 | 55.7 | 730 | 12438 | 0.0 | 860 | 3515 | 0.0 | 990 | 4172 | 0.0 |
| 475 | 5328 | 0.4 | 605 | 128057 | 49.6 | 735 | 11255 | 0.0 | 865 | 3600 | 0.0 | 995 | 3177 | 0.0 |
| 480 | 5081 | 0.5 | 610 | 126031 | 43.3 | 740 | 9951 | 0.0 | 870 | 3609 | 0.0 | 1000 | 3241 | 0.0 |
| 485 | 5579 | 0.7 | 615 | 123059 | 37.1 | 745 | 8870 | 0.0 | 875 | 3208 | 0.0 | | | |

REPORT NUMBER: SP1-1908-441-1-R4

Scotopic Flux vs. Wavelength



Scotopic Lumens: 6474.3

S/P: 1.04

| 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 | 2044 | 0.0 | 490 | 7179 | 6.0 | 620 | 118034 | 0.1 | 750 | 8362 | 0.0 | 880 | 3128 | 0.0 |
| 365 | 2016 | 0.0 | 495 | 10476 | 8.6 | 625 | 111884 | 0.1 | 755 | 7635 | 0.0 | 885 | 3110 | 0.0 |
| 370 | 2020 | 0.0 | 500 | 15549 | 12.5 | 630 | 106119 | 0.0 | 760 | 6582 | 0.0 | 890 | 2632 | 0.0 |
| 375 | 2137 | 0.0 | 505 | 22477 | 17.3 | 635 | 99706 | 0.0 | 765 | 5777 | 0.0 | 895 | 2709 | 0.0 |
| 380 | 2046 | 0.0 | 510 | 30417 | 21.8 | 640 | 92142 | 0.0 | 770 | 5474 | 0.0 | 900 | 2016 | 0.0 |
| 385 | 1925 | 0.0 | 515 | 39274 | 25.7 | 645 | 84987 | 0.0 | 775 | 4977 | 0.0 | 905 | 1748 | 0.0 |
| 390 | 1893 | 0.0 | 520 | 47282 | 27.5 | 650 | 78016 | 0.0 | 780 | 4723 | 0.0 | 910 | 2046 | 0.0 |
| 395 | 1695 | 0.0 | 525 | 55413 | 28.1 | 655 | 71541 | 0.0 | 785 | 4219 | 0.0 | 915 | 1844 | 0.0 |
| 400 | 1633 | 0.0 | 530 | 62377 | 27.0 | 660 | 64863 | 0.0 | 790 | 3969 | 0.0 | 920 | 2734 | 0.0 |
| 405 | 2065 | 0.0 | 535 | 68520 | 24.7 | 665 | 58485 | 0.0 | 795 | 4122 | 0.0 | 925 | 2307 | 0.0 |
| 410 | 3449 | 0.1 | 540 | 73435 | 21.5 | 670 | 51641 | 0.0 | 800 | 2864 | 0.0 | 930 | 2039 | 0.0 |
| 415 | 7117 | 0.5 | 545 | 78677 | 18.3 | 675 | 46030 | 0.0 | 805 | 3151 | 0.0 | 935 | 1784 | 0.0 |
| 420 | 13992 | 1.6 | 550 | 83331 | 15.0 | 680 | 40590 | 0.0 | 810 | 3022 | 0.0 | 940 | 2464 | 0.0 |
| 425 | 25176 | 3.9 | 555 | 89120 | 12.0 | 685 | 35691 | 0.0 | 815 | 3471 | 0.0 | 945 | 2794 | 0.0 |
| 430 | 38151 | 8.1 | 560 | 94613 | 9.3 | 690 | 31631 | 0.0 | 820 | 2749 | 0.0 | 950 | 3090 | 0.0 |
| 435 | 49673 | 13.3 | 565 | 99818 | 7.0 | 695 | 27437 | 0.0 | 825 | 2729 | 0.0 | 955 | 1866 | 0.0 |
| 440 | 57273 | 19.1 | 570 | 106526 | 5.2 | 700 | 24589 | 0.0 | 830 | 2282 | 0.0 | 960 | 3110 | 0.0 |
| 445 | 54802 | 21.6 | 575 | 111610 | 3.7 | 705 | 21832 | 0.0 | 835 | 3140 | 0.0 | 965 | 3880 | 0.0 |
| 450 | 39184 | 18.1 | 580 | 117163 | 2.6 | 710 | 19500 | 0.0 | 840 | 2365 | 0.0 | 970 | 3243 | 0.0 |
| 455 | 22506 | 11.8 | 585 | 122201 | 1.8 | 715 | 17870 | 0.0 | 845 | 3024 | 0.0 | 975 | 2014 | 0.0 |
| 460 | 13692 | 8.1 | 590 | 125662 | 1.2 | 720 | 15924 | 0.0 | 850 | 2510 | 0.0 | 980 | 1688 | 0.0 |
| 465 | 9446 | 6.2 | 595 | 127415 | 0.8 | 725 | 14268 | 0.0 | 855 | 2739 | 0.0 | 985 | 2827 | 0.0 |
| 470 | 6698 | 4.8 | 600 | 129155 | 0.5 | 730 | 12438 | 0.0 | 860 | 3515 | 0.0 | 990 | 4172 | 0.0 |
| 475 | 5328 | 4.1 | 605 | 128057 | 0.4 | 735 | 11255 | 0.0 | 865 | 3600 | 0.0 | 995 | 3177 | 0.0 |
| 480 | 5081 | 4.1 | 610 | 126031 | 0.2 | 740 | 9951 | 0.0 | 870 | 3609 | 0.0 | 1000 | 3241 | 0.0 |
| 485 | 5579 | 4.6 | 615 | 123059 | 0.1 | 745 | 8870 | 0.0 | 875 | 3208 | 0.0 | | | |

REPORT NUMBER: SP1-1908-441-1-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 2145.7 M/P: 0.35

| 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 | 2044 | 0.0 | 490 | 7179 | 11.1 | 620 | 118034 | 1.5 | 750 | 8362 | 0.0 | 880 | 3128 | 0.0 |
| 365 | 2016 | 0.0 | 495 | 10476 | 16.9 | 625 | 111884 | 0.9 | 755 | 7635 | 0.0 | 885 | 3110 | 0.0 |
| 370 | 2020 | 0.0 | 500 | 15549 | 26.0 | 630 | 106119 | 0.6 | 760 | 6582 | 0.0 | 890 | 2632 | 0.0 |
| 375 | 2137 | 0.0 | 505 | 22477 | 38.2 | 635 | 99706 | 0.4 | 765 | 5777 | 0.0 | 895 | 2709 | 0.0 |
| 380 | 2046 | 0.0 | 510 | 30417 | 51.6 | 640 | 92142 | 0.2 | 770 | 5474 | 0.0 | 900 | 2016 | 0.0 |
| 385 | 1925 | 0.0 | 515 | 39274 | 65.1 | 645 | 84987 | 0.1 | 775 | 4977 | 0.0 | 905 | 1748 | 0.0 |
| 390 | 1893 | 0.0 | 520 | 47282 | 75.2 | 650 | 78016 | 0.1 | 780 | 4723 | 0.0 | 910 | 2046 | 0.0 |
| 395 | 1695 | 0.0 | 525 | 55413 | 82.9 | 655 | 71541 | 0.1 | 785 | 4219 | 0.0 | 915 | 1844 | 0.0 |
| 400 | 1633 | 0.0 | 530 | 62377 | 86.0 | 660 | 64863 | 0.0 | 790 | 3969 | 0.0 | 920 | 2734 | 0.0 |
| 405 | 2065 | 0.1 | 535 | 68520 | 85.4 | 665 | 58485 | 0.0 | 795 | 4122 | 0.0 | 925 | 2307 | 0.0 |
| 410 | 3449 | 0.2 | 540 | 73435 | 81.1 | 670 | 51641 | 0.0 | 800 | 2864 | 0.0 | 930 | 2039 | 0.0 |
| 415 | 7117 | 0.7 | 545 | 78677 | 75.4 | 675 | 46030 | 0.0 | 805 | 3151 | 0.0 | 935 | 1784 | 0.0 |
| 420 | 13992 | 2.3 | 550 | 83331 | 68.1 | 680 | 40590 | 0.0 | 810 | 3022 | 0.0 | 940 | 2464 | 0.0 |
| 425 | 25176 | 6.2 | 555 | 89120 | 60.9 | 685 | 35691 | 0.0 | 815 | 3471 | 0.0 | 945 | 2794 | 0.0 |
| 430 | 38151 | 13.0 | 560 | 94613 | 52.9 | 690 | 31631 | 0.0 | 820 | 2749 | 0.0 | 950 | 3090 | 0.0 |
| 435 | 49673 | 22.2 | 565 | 99818 | 44.8 | 695 | 27437 | 0.0 | 825 | 2729 | 0.0 | 955 | 1866 | 0.0 |
| 440 | 57273 | 32.0 | 570 | 106526 | 37.6 | 700 | 24589 | 0.0 | 830 | 2282 | 0.0 | 960 | 3110 | 0.0 |
| 445 | 54802 | 36.7 | 575 | 111610 | 30.4 | 705 | 21832 | 0.0 | 835 | 3140 | 0.0 | 965 | 3880 | 0.0 |
| 450 | 39184 | 30.4 | 580 | 117163 | 24.1 | 710 | 19500 | 0.0 | 840 | 2365 | 0.0 | 970 | 3243 | 0.0 |
| 455 | 22506 | 19.7 | 585 | 122201 | 18.7 | 715 | 17870 | 0.0 | 845 | 3024 | 0.0 | 975 | 2014 | 0.0 |
| 460 | 13692 | 13.2 | 590 | 125662 | 14.0 | 720 | 15924 | 0.0 | 850 | 2510 | 0.0 | 980 | 1688 | 0.0 |
| 465 | 9446 | 10.0 | 595 | 127415 | 10.2 | 725 | 14268 | 0.0 | 855 | 2739 | 0.0 | 985 | 2827 | 0.0 |
| 470 | 6698 | 7.7 | 600 | 129155 | 7.3 | 730 | 12438 | 0.0 | 860 | 3515 | 0.0 | 990 | 4172 | 0.0 |
| 475 | 5328 | 6.7 | 605 | 128057 | 5.0 | 735 | 11255 | 0.0 | 865 | 3600 | 0.0 | 995 | 3177 | 0.0 |
| 480 | 5081 | 6.9 | 610 | 126031 | 3.4 | 740 | 9951 | 0.0 | 870 | 3609 | 0.0 | 1000 | 3241 | 0.0 |
| 485 | 5579 | 8.1 | 615 | 123059 | 2.3 | 745 | 8870 | 0.0 | 875 | 3208 | 0.0 | | | |

REPORT NUMBER: SP1-1908-441-1-R4

TM-30-18

Summary

$R_f = 69.9$
 $R_g = 98.3$
 CIE $R_a = 71.5$
 $R_9 = -16.1$



Color Vector Graphics



REPORT NUMBER: SP1-1908-441-1-R4

TM-30-18

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

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 54 | CES51 = 77 | CES76 = 48 |
| CES02 = 63 | CES27 = 74 | CES52 = 80 | CES77 = 75 |
| CES03 = 31 | CES28 = 80 | CES53 = 66 | CES78 = 56 |
| CES04 = 71 | CES29 = 44 | CES54 = 77 | CES79 = 81 |
| CES05 = 50 | CES30 = 46 | CES55 = 74 | CES80 = 80 |
| CES06 = 52 | CES31 = 50 | CES56 = 63 | CES81 = 73 |
| CES07 = 42 | CES32 = 49 | CES57 = 60 | CES82 = 91 |
| CES08 = 41 | CES33 = 53 | CES58 = 63 | CES83 = 84 |
| CES09 = 29 | CES34 = 66 | CES59 = 85 | CES84 = 90 |
| CES10 = 77 | CES35 = 82 | CES60 = 89 | CES85 = 87 |
| CES11 = 60 | CES36 = 78 | CES61 = 85 | CES86 = 65 |
| CES12 = 66 | CES37 = 75 | CES62 = 69 | CES87 = 78 |
| CES13 = 43 | CES38 = 53 | CES63 = 68 | CES88 = 73 |
| CES14 = 74 | CES39 = 91 | CES64 = 68 | CES89 = 68 |
| CES15 = 71 | CES40 = 85 | CES65 = 65 | CES90 = 68 |
| CES16 = 48 | CES41 = 76 | CES66 = 62 | CES91 = 91 |
| CES17 = 50 | CES42 = 76 | CES67 = 60 | CES92 = 71 |
| CES18 = 57 | CES43 = 65 | CES68 = 68 | CES93 = 82 |
| CES19 = 73 | CES44 = 98 | CES69 = 77 | CES94 = 57 |
| CES20 = 67 | CES45 = 75 | CES70 = 60 | CES95 = 78 |
| CES21 = 88 | CES46 = 70 | CES71 = 57 | CES96 = 80 |
| CES22 = 80 | CES47 = 63 | CES72 = 86 | CES97 = 79 |
| CES23 = 92 | CES48 = 51 | CES73 = 52 | CES98 = 71 |
| CES24 = 91 | CES49 = 68 | CES74 = 90 | CES99 = 64 |
| CES25 = 73 | CES50 = 77 | CES75 = 58 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)