

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: P318210

Luminaire Tested: **GLEON-SA6C-827-U-T2**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P318210
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-12)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: GLEON-SA6C-827-U-T2
Description: GALLEON AREA AND ROADWAY LUMINAIRE
(6) 80 CRI, 2700K, 1050mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 30518 lumens
Efficiency: N/A
Efficacy: 91.6 lumens/watt
Luminous Opening: Rectangular (W 1.5' x L: 1' x H: 0')
IES Classification: Type III - Medium
BUG Rating: B3 - U0 - G4

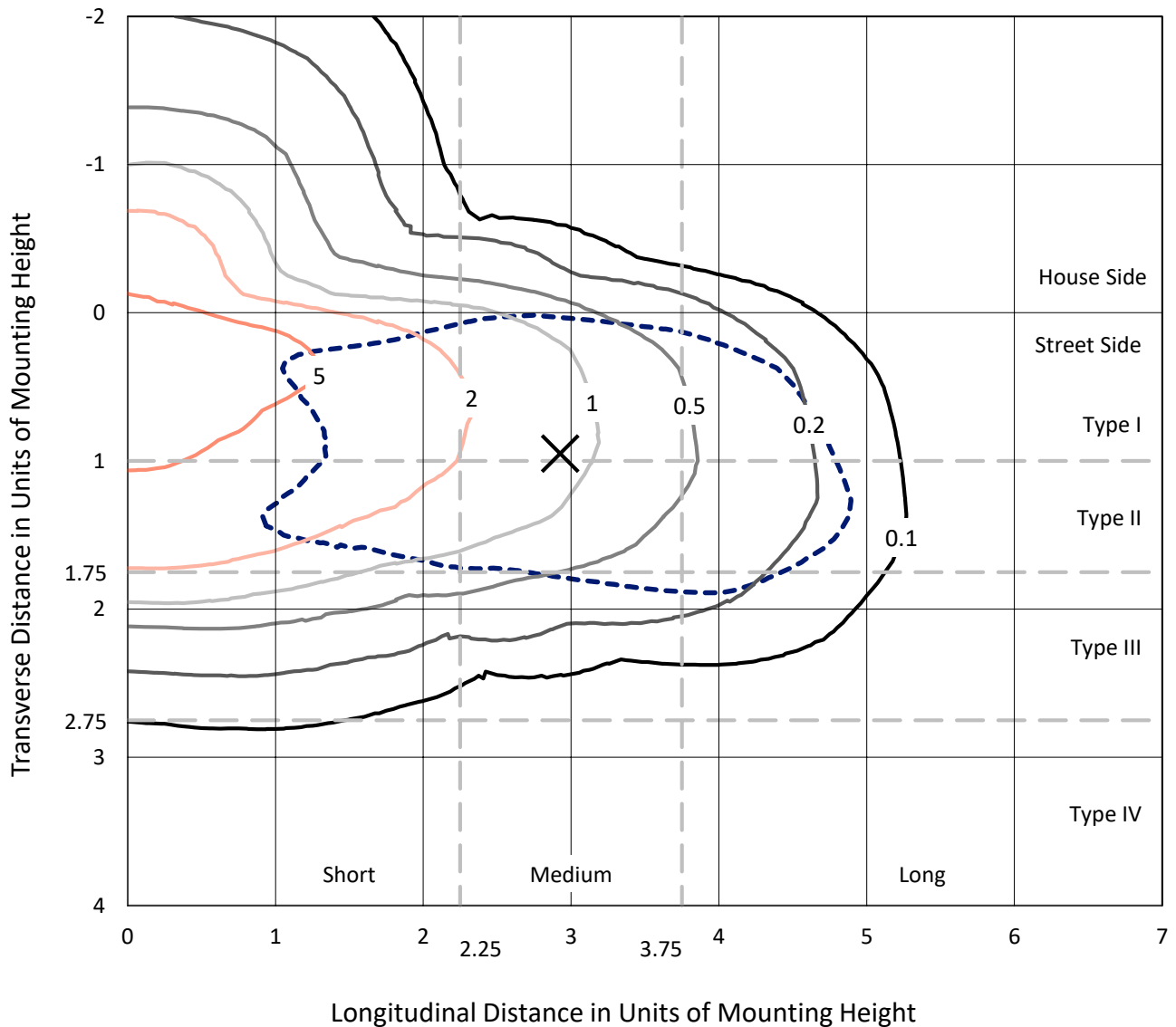
Input Watts (W): 333
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Iso-Footcandle Lines of Horizontal Illumination

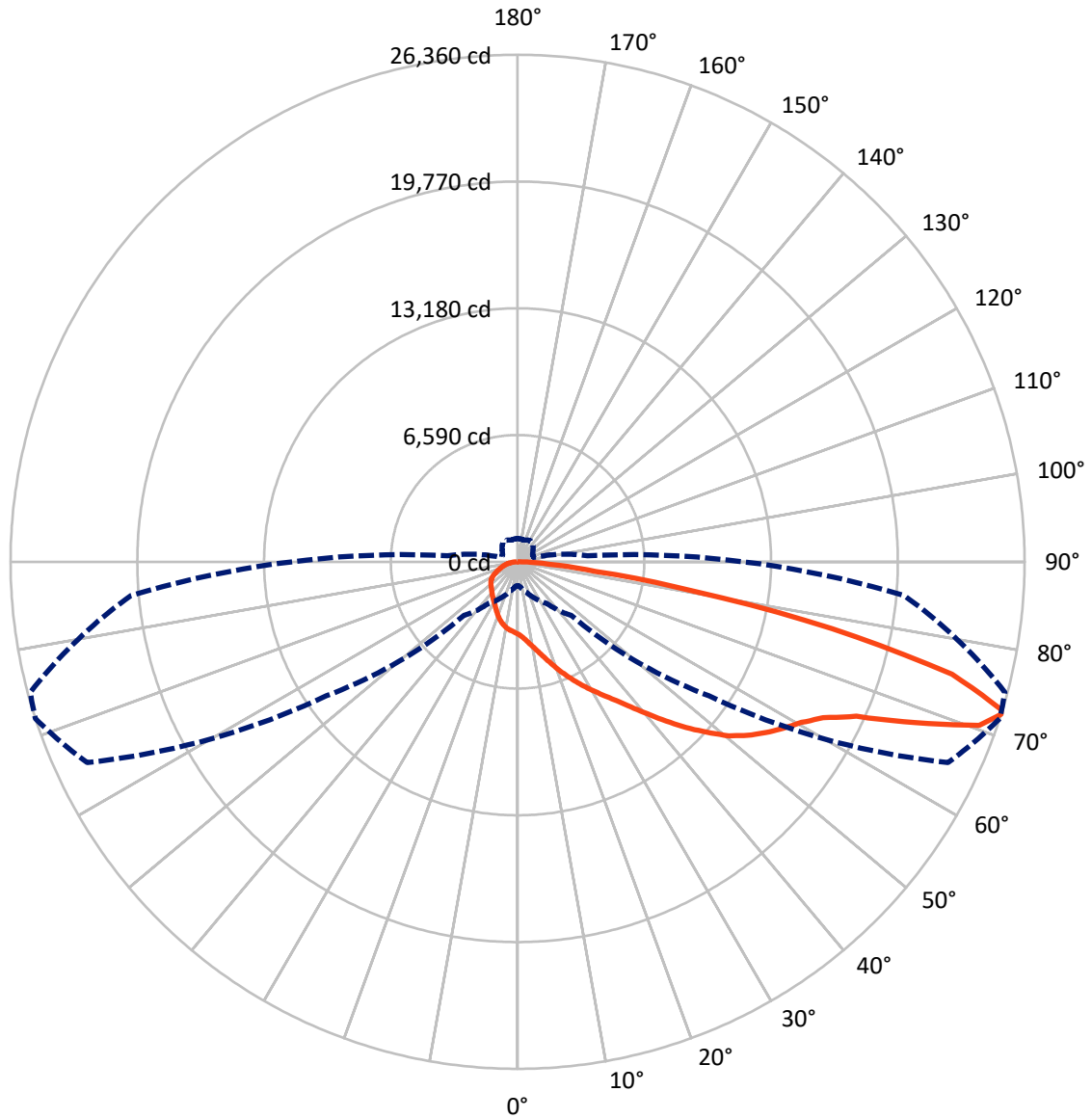
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 8.3 fc
 Type III - Medium - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 72-Deg Lateral - - - Horizontal Cone Through 72-Deg Vertical

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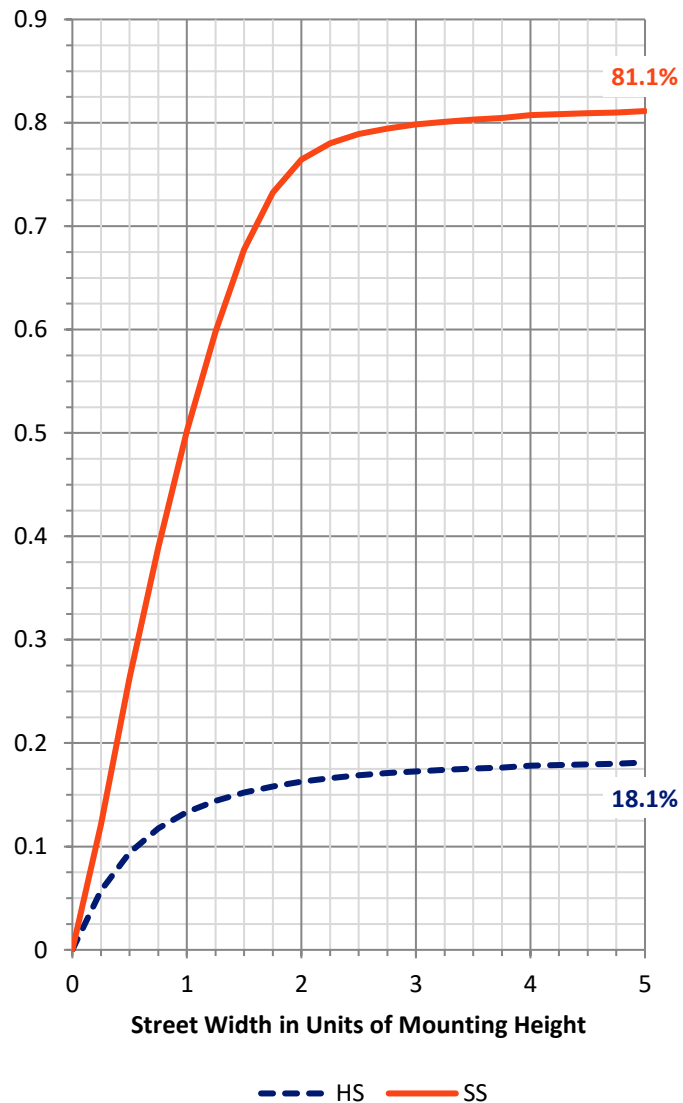
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 5661.3 | 0.0 | 5661.3 |
| | % Fixture | 18.6 | 0.0 | 18.6 |
| Street Side | Lumens | 24856.7 | 0.0 | 24856.7 |
| | % Fixture | 81.4 | 0.0 | 81.4 |
| Total | Lumens | 30518.0 | 0.0 | 30518.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 376.2 | 1.2 |
| 10°-20° | 1215.7 | 4.0 |
| 20°-30° | 2130.4 | 7.0 |
| 30°-40° | 3158.7 | 10.4 |
| 40°-50° | 4619.8 | 15.1 |
| 50°-60° | 6356.8 | 20.8 |
| 60°-70° | 7077.0 | 23.2 |
| 70°-80° | 4795.4 | 15.7 |
| 80°-90° | 788.2 | 2.6 |
| 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° | 30518.0 | 100.0 |
| 0°-180° | 30518.0 | 100.0 |

Coefficient of Utilization

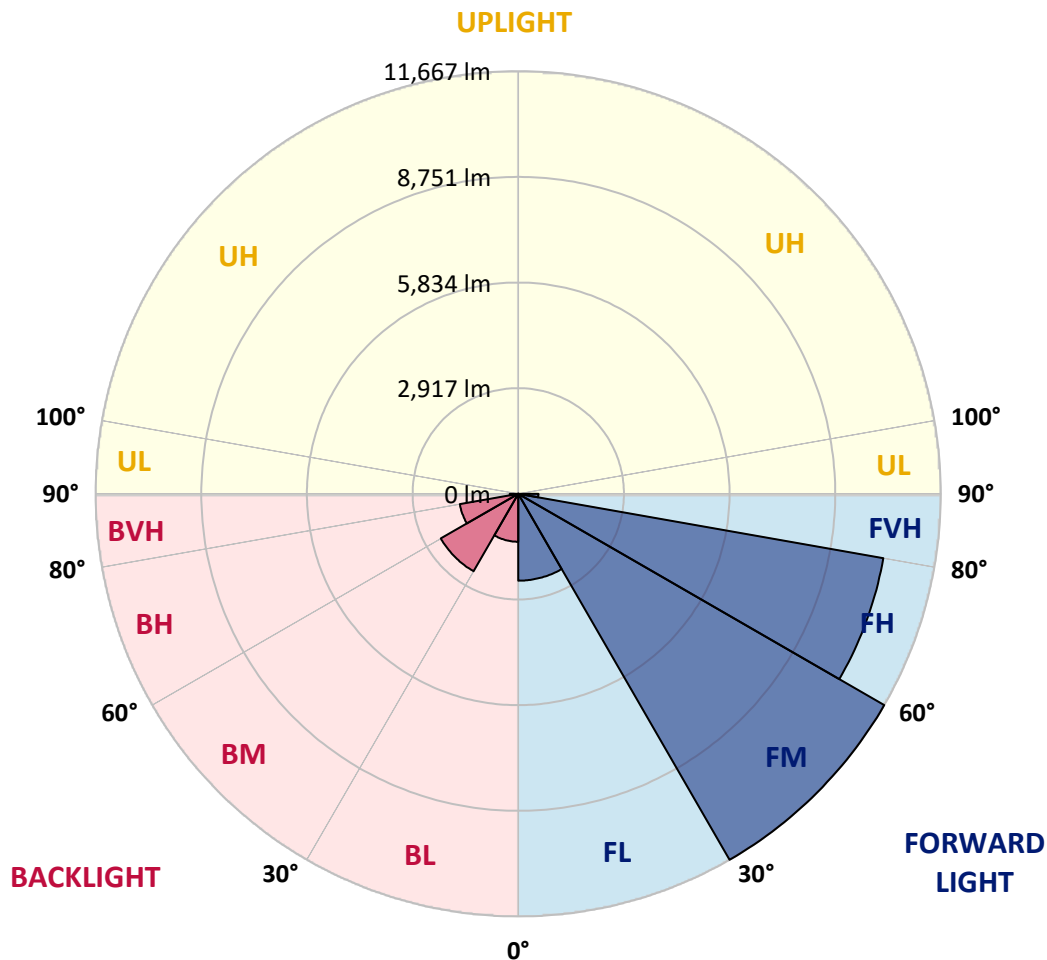


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|---------|-----------|-------------------------|------|----------|
| | | | B | U | G |
| FL (0°-30°) | 2398.9 | 7.9 | | | |
| FM (30°-60°) | 11667.4 | 38.2 | | | |
| FH (60°-80°) | 10234.4 | 33.5 | | | G4/12000 |
| FVH (80°-90°) | 556.0 | 1.8 | | | G4/750 |
| BL (0°-30°) | 1323.4 | 4.3 | B3/2500 | | |
| BM (30°-60°) | 2467.8 | 8.1 | B2/2500 | | |
| BH (60°-80°) | 1637.9 | 5.4 | B3/2500 | | G3/2500 |
| BVH (80°-90°) | 232.2 | 0.8 | | | G3/500 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B3-U0-G4
 Type III Medium





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 72° | 75° | 85° |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0° | 3754.5 | 3754.5 | 3754.5 | 3754.5 | 3754.5 | 3754.5 | 3754.5 | 3754.5 | 3754.5 | 3754.5 | 3754.5 |
| 2.5° | 4147.5 | 4141.2 | 4119.1 | 4119.1 | 4077.1 | 4041.4 | 3974.1 | 3928.9 | 3875.4 | 3856.4 | 3793.4 |
| 5° | 4548.9 | 4551.0 | 4523.7 | 4504.8 | 4442.8 | 4367.1 | 4252.6 | 4148.6 | 4044.5 | 4002.5 | 3873.3 |
| 7.5° | 4886.2 | 4882.0 | 4874.7 | 4858.9 | 4801.1 | 4723.3 | 4568.9 | 4414.4 | 4261.0 | 4197.9 | 3975.2 |
| 10° | 5102.7 | 5112.1 | 5118.4 | 5125.8 | 5101.6 | 5045.9 | 4899.9 | 4711.8 | 4511.1 | 4424.9 | 4097.1 |
| 12.5° | 5212.0 | 5228.8 | 5258.2 | 5308.6 | 5348.6 | 5342.3 | 5236.1 | 5036.5 | 4798.0 | 4689.7 | 4249.4 |
| 15° | 5276.1 | 5298.1 | 5344.4 | 5434.7 | 5547.2 | 5611.3 | 5582.9 | 5402.2 | 5136.3 | 5002.9 | 4435.4 |
| 17.5° | 5316.0 | 5333.9 | 5405.3 | 5526.2 | 5693.2 | 5863.5 | 5938.1 | 5786.8 | 5518.8 | 5366.4 | 4648.7 |
| 20° | 5343.3 | 5357.0 | 5446.3 | 5588.2 | 5804.6 | 6075.7 | 6283.8 | 6246.0 | 5940.2 | 5742.6 | 4871.5 |
| 22.5° | 5404.3 | 5415.8 | 5500.9 | 5643.8 | 5883.4 | 6233.3 | 6616.9 | 6673.6 | 6384.7 | 6160.8 | 5110.0 |
| 25° | 5574.5 | 5574.5 | 5646.0 | 5745.8 | 5970.6 | 6370.0 | 6898.5 | 7149.6 | 6838.6 | 6578.0 | 5330.7 |
| 27.5° | 5899.2 | 5896.0 | 5922.3 | 5957.0 | 6127.2 | 6508.7 | 7149.6 | 7570.0 | 7309.4 | 7024.6 | 5545.1 |
| 30° | 6283.8 | 6304.8 | 6308.0 | 6291.1 | 6371.0 | 6682.0 | 7381.9 | 8013.4 | 7783.3 | 7476.4 | 5764.7 |
| 32.5° | 6778.7 | 6792.4 | 6776.6 | 6720.9 | 6709.4 | 6927.9 | 7609.9 | 8477.9 | 8296.1 | 7948.3 | 5965.4 |
| 35° | 7407.1 | 7380.8 | 7331.4 | 7217.9 | 7109.7 | 7256.8 | 7870.5 | 8942.3 | 8871.9 | 8518.8 | 6241.8 |
| 37.5° | 8080.7 | 8081.7 | 8020.8 | 7763.3 | 7614.1 | 7677.1 | 8229.9 | 9468.8 | 9568.6 | 9197.7 | 6595.9 |
| 40° | 8620.8 | 8649.1 | 8687.0 | 8348.6 | 8155.3 | 8242.5 | 8687.0 | 10079.3 | 10392.4 | 10002.6 | 7057.2 |
| 42.5° | 8998.0 | 9030.6 | 9137.8 | 8925.5 | 8724.8 | 8886.6 | 9225.0 | 10730.8 | 11317.1 | 10931.5 | 7597.3 |
| 45° | 9397.3 | 9415.2 | 9490.8 | 9399.4 | 9271.2 | 9635.8 | 9831.3 | 11405.4 | 12295.4 | 11921.3 | 8201.5 |
| 47.5° | 9817.6 | 9836.5 | 9914.3 | 9853.4 | 9786.1 | 10335.7 | 10463.9 | 12041.1 | 13232.7 | 13008.9 | 8846.7 |
| 50° | 10336.7 | 10349.3 | 10422.9 | 10312.6 | 10333.6 | 10863.2 | 11029.2 | 12624.3 | 14215.2 | 13986.2 | 9494.0 |
| 52.5° | 11045.0 | 11048.1 | 11150.0 | 11050.2 | 10951.4 | 11249.9 | 11515.7 | 13173.9 | 14985.5 | 14877.2 | 10141.3 |
| 55° | 11599.8 | 11633.4 | 11967.6 | 11946.6 | 11889.8 | 11600.8 | 11922.4 | 13697.2 | 15672.7 | 15724.2 | 10828.5 |
| 57.5° | 11245.7 | 11377.0 | 12053.7 | 12530.8 | 12995.2 | 12474.1 | 12472.0 | 14286.7 | 16311.6 | 16555.4 | 11584.0 |
| 60° | 9849.2 | 10027.8 | 11025.0 | 12083.2 | 13536.4 | 13993.5 | 13613.1 | 15006.5 | 16956.8 | 17379.2 | 12530.8 |
| 62.5° | 7034.1 | 7328.3 | 8679.6 | 10369.3 | 12794.5 | 15000.2 | 15935.4 | 16148.7 | 17834.2 | 18333.3 | 13761.3 |
| 65° | 3555.9 | 3778.7 | 4911.4 | 6946.8 | 10222.2 | 14342.4 | 18459.4 | 18649.6 | 19358.9 | 19802.3 | 15655.9 |
| 67.5° | 2160.4 | 2244.5 | 2797.2 | 3863.8 | 6267.0 | 11172.1 | 19283.2 | 22818.1 | 22309.5 | 22544.9 | 18357.5 |
| 70° | 1592.0 | 1654.0 | 1998.6 | 2566.1 | 3604.2 | 6555.9 | 16755.0 | 25792.9 | 25458.8 | 25432.5 | 20354.0 |
| 72° | 1239.9 | 1285.1 | 1589.9 | 2073.2 | 2635.4 | 3933.1 | 12144.1 | 24694.9 | 26360.4 | 26228.0 | 20171.2 |
| 72.5° | 1175.8 | 1215.8 | 1493.2 | 1951.3 | 2490.4 | 3565.4 | 10918.9 | 23954.0 | 26295.2 | 26235.3 | 19934.7 |
| 75° | 925.8 | 954.1 | 1105.4 | 1508.9 | 1949.2 | 2022.8 | 5983.3 | 18563.4 | 23326.7 | 24296.6 | 17929.8 |
| 77.5° | 766.0 | 770.2 | 850.1 | 1098.1 | 1519.5 | 1430.1 | 2939.1 | 12879.7 | 16703.5 | 17770.1 | 12701.0 |
| 80° | 624.2 | 629.4 | 667.3 | 770.2 | 1149.6 | 1058.2 | 1395.5 | 7406.0 | 9352.1 | 9363.7 | 6040.0 |
| 82.5° | 497.0 | 498.1 | 540.1 | 563.2 | 825.9 | 756.6 | 799.7 | 3477.1 | 4086.6 | 3931.0 | 2171.0 |
| 85° | 349.9 | 342.6 | 527.5 | 462.4 | 540.1 | 485.5 | 441.3 | 1376.5 | 1689.7 | 1616.1 | 679.9 |
| 87.5° | 116.6 | 120.8 | 234.3 | 299.5 | 315.2 | 275.3 | 196.5 | 527.5 | 637.8 | 632.6 | 215.4 |
| 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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CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 3754.5 | 3754.5 | 3754.5 | 3754.5 | 3754.5 | 3754.5 | 3754.5 | 3754.5 | 3754.5 | 3754.5 | 3754.5 |
| 2.5° | 3773.4 | 3739.8 | 3690.4 | 3635.8 | 3592.7 | 3548.6 | 3516.0 | 3499.2 | 3480.3 | 3464.5 | 3483.4 |
| 5° | 3813.4 | 3750.3 | 3645.2 | 3542.2 | 3466.6 | 3399.3 | 3351.0 | 3325.8 | 3302.7 | 3286.9 | 3289.0 |
| 7.5° | 3878.5 | 3776.6 | 3600.0 | 3449.8 | 3344.7 | 3272.2 | 3222.8 | 3206.0 | 3191.3 | 3187.1 | 3192.3 |
| 10° | 3947.9 | 3797.6 | 3540.1 | 3340.5 | 3220.7 | 3160.8 | 3138.7 | 3150.3 | 3160.8 | 3170.3 | 3180.8 |
| 12.5° | 4026.7 | 3816.5 | 3452.9 | 3212.3 | 3110.4 | 3087.3 | 3109.3 | 3159.8 | 3196.5 | 3218.6 | 3232.3 |
| 15° | 4129.6 | 3833.3 | 3352.1 | 3084.1 | 3015.8 | 3042.1 | 3116.7 | 3203.9 | 3268.0 | 3309.0 | 3315.3 |
| 17.5° | 4224.2 | 3832.3 | 3222.8 | 2954.9 | 2939.1 | 3015.8 | 3128.2 | 3251.2 | 3337.3 | 3395.1 | 3406.7 |
| 20° | 4321.9 | 3803.9 | 3072.5 | 2828.8 | 2861.3 | 2987.4 | 3133.5 | 3281.6 | 3385.7 | 3452.9 | 3468.7 |
| 22.5° | 4413.4 | 3754.5 | 2907.6 | 2714.2 | 2796.2 | 2949.6 | 3113.5 | 3263.8 | 3367.8 | 3422.5 | 3439.3 |
| 25° | 4475.4 | 3668.3 | 2740.5 | 2617.5 | 2738.4 | 2903.4 | 3048.4 | 3169.2 | 3247.0 | 3274.3 | 3278.5 |
| 27.5° | 4506.9 | 3555.9 | 2582.9 | 2533.5 | 2678.5 | 2827.7 | 2927.5 | 2987.4 | 3009.5 | 3007.4 | 3003.2 |
| 30° | 4511.1 | 3407.7 | 2447.3 | 2465.2 | 2609.1 | 2716.3 | 2763.6 | 2752.0 | 2723.7 | 2675.3 | 2679.5 |
| 32.5° | 4497.4 | 3240.7 | 2333.8 | 2400.0 | 2520.9 | 2580.8 | 2582.9 | 2527.2 | 2451.5 | 2374.8 | 2353.8 |
| 35° | 4501.6 | 3076.7 | 2234.0 | 2326.5 | 2413.7 | 2440.0 | 2415.8 | 2333.8 | 2230.8 | 2132.1 | 2111.1 |
| 37.5° | 4547.9 | 2933.8 | 2147.8 | 2241.4 | 2294.9 | 2301.3 | 2266.6 | 2180.4 | 2104.8 | 2008.1 | 1999.7 |
| 40° | 4658.2 | 2831.9 | 2065.9 | 2145.7 | 2176.2 | 2179.4 | 2130.0 | 2069.0 | 2075.3 | 2023.8 | 2022.8 |
| 42.5° | 4856.8 | 2787.8 | 1993.4 | 2045.9 | 2064.8 | 2071.1 | 2033.3 | 1994.4 | 2049.1 | 2015.4 | 2003.9 |
| 45° | 5113.2 | 2798.3 | 1932.4 | 1948.2 | 1982.9 | 2012.3 | 1989.2 | 1941.9 | 1962.9 | 1816.8 | 1768.5 |
| 47.5° | 5409.5 | 2865.5 | 1884.1 | 1864.1 | 1924.0 | 1979.7 | 1944.0 | 1872.5 | 1797.9 | 1652.9 | 1625.6 |
| 50° | 5756.3 | 2969.6 | 1840.0 | 1781.1 | 1859.9 | 1935.6 | 1899.8 | 1797.9 | 1685.5 | 1615.1 | 1605.6 |
| 52.5° | 6117.8 | 3096.7 | 1795.8 | 1689.7 | 1779.0 | 1901.9 | 1884.1 | 1781.1 | 1642.4 | 1573.0 | 1560.4 |
| 55° | 6527.6 | 3224.9 | 1740.1 | 1583.6 | 1691.8 | 1886.2 | 1876.7 | 1720.2 | 1609.8 | 1570.9 | 1561.5 |
| 57.5° | 7037.2 | 3371.0 | 1666.6 | 1473.2 | 1609.8 | 1829.4 | 1800.0 | 1683.4 | 1576.2 | 1546.8 | 1543.6 |
| 60° | 7701.3 | 3586.4 | 1560.4 | 1355.5 | 1510.0 | 1742.2 | 1735.9 | 1629.8 | 1522.6 | 1501.6 | 1497.4 |
| 62.5° | 8697.5 | 3942.6 | 1414.4 | 1237.8 | 1398.6 | 1594.1 | 1651.9 | 1557.3 | 1465.9 | 1464.8 | 1466.9 |
| 65° | 10242.2 | 4478.5 | 1255.7 | 1134.9 | 1286.2 | 1469.0 | 1554.1 | 1482.7 | 1408.1 | 1429.1 | 1432.2 |
| 67.5° | 12032.7 | 4923.0 | 1100.2 | 1034.0 | 1171.6 | 1350.3 | 1465.9 | 1408.1 | 1331.4 | 1386.0 | 1387.1 |
| 70° | 12628.5 | 4525.8 | 963.6 | 934.2 | 1052.9 | 1235.7 | 1370.2 | 1326.1 | 1248.4 | 1303.0 | 1297.7 |
| 72° | 11752.2 | 3653.6 | 875.3 | 858.5 | 963.6 | 1141.2 | 1285.1 | 1249.4 | 1172.7 | 1209.5 | 1195.8 |
| 72.5° | 11475.8 | 3483.4 | 853.3 | 839.6 | 939.4 | 1117.0 | 1263.1 | 1230.5 | 1153.8 | 1185.3 | 1172.7 |
| 75° | 10236.9 | 3025.3 | 733.5 | 736.6 | 819.6 | 999.3 | 1139.1 | 1128.6 | 1049.7 | 1052.9 | 1048.7 |
| 77.5° | 7425.0 | 2218.2 | 617.9 | 638.9 | 697.7 | 878.5 | 1014.0 | 1007.7 | 921.6 | 905.8 | 902.6 |
| 80° | 3445.6 | 1131.7 | 503.3 | 512.8 | 573.7 | 734.5 | 864.8 | 856.4 | 787.0 | 767.1 | 755.5 |
| 82.5° | 1180.0 | 538.0 | 378.3 | 384.6 | 444.5 | 591.6 | 750.3 | 745.0 | 687.2 | 648.3 | 624.2 |
| 85° | 421.4 | 268.0 | 264.8 | 258.5 | 317.3 | 465.5 | 653.6 | 625.2 | 540.1 | 460.3 | 458.1 |
| 87.5° | 136.6 | 114.5 | 136.6 | 135.6 | 184.9 | 315.2 | 475.0 | 404.6 | 391.9 | 325.7 | 319.4 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

Invue

Report Number: SP1-2407-157-9

Test Date: 10/03/2024

Luminaire Tested: EMM2-HTN-SA1A-827-U-5WQ

Data applicable to all product families utilizing light square engine

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-157-9
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 10/03/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: Invue
 Catalog Number: **EMM2-HTN-SA1A-827-U-5WQ**
 Description: Epic Modern Light Square 40W 5WQ Optic

Spectral Parameters

CCT (K): 2764
 CIE u': 0.2591
 CIE v': 0.5290
 Duv: 0.0020
 CIE x: 0.4581
 CIE y: 0.4156
 CIE z: 0.1263
 Peak Wavelength (nm): 603
 Dominant Wavelength (nm): 583
 Purity: 62.2537
 Rf: 84.7
 Rg: 94.6

| | | | |
|-----------|------|------|------|
| CRI (Ra): | 80.9 | | |
| R1: | 78.8 | R9: | -1.5 |
| R2: | 89.9 | R10: | 77.9 |
| R3: | 96.2 | R11: | 78.9 |
| R4: | 79.1 | R12: | 71.6 |
| R5: | 79.1 | R13: | 81.2 |
| R6: | 88.8 | R14: | 98.5 |
| R7: | 81.3 | R15: | 69.9 |
| R8: | 54.3 | | |



Test Conditions

Stabilization Time: 81M
 Operation Time: 2H 21M
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-157-9

| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 2/8/2024 | 2/8/2025 |
| AC Power Source | IN0063 | 10/24/2023 | 10/24/2024 |
| DC Power Source | IN0208 | 10/24/2023 | 10/24/2024 |
| Sphere Thermometer | IN0085 | 10/24/2023 | 10/24/2024 |
| Room Thermometer | IN0046 | 10/24/2023 | 10/24/2024 |

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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 2700K 4-step quadrangle

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Photopic Flux vs. Wavelength



Photopic Lumens: 4337.9

| 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 | 0 | 0.0 | 490 | 18018 | 2.6 | 620 | 87426 | 22.8 | 750 | 2680 | 0.0 | 880 | 58 | 0.0 |
| 365 | 0 | 0.0 | 495 | 22295 | 3.9 | 625 | 83013 | 18.2 | 755 | 2287 | 0.0 | 885 | 46 | 0.0 |
| 370 | 0 | 0.0 | 500 | 26478 | 5.8 | 630 | 78077 | 14.1 | 760 | 1944 | 0.0 | 890 | 45 | 0.0 |
| 375 | 0 | 0.0 | 505 | 30524 | 8.5 | 635 | 72080 | 10.7 | 765 | 1653 | 0.0 | 895 | 41 | 0.0 |
| 380 | 0 | 0.0 | 510 | 33611 | 11.5 | 640 | 66249 | 7.9 | 770 | 1413 | 0.0 | 900 | 38 | 0.0 |
| 385 | 0 | 0.0 | 515 | 36490 | 15.2 | 645 | 59973 | 5.7 | 775 | 1198 | 0.0 | 905 | 33 | 0.0 |
| 390 | 0 | 0.0 | 520 | 38610 | 18.7 | 650 | 53972 | 3.9 | 780 | 1025 | 0.0 | 910 | 30 | 0.0 |
| 395 | 0 | 0.0 | 525 | 40511 | 21.9 | 655 | 48369 | 2.7 | 785 | 874 | 0.0 | 915 | 23 | 0.0 |
| 400 | 48 | 0.0 | 530 | 42223 | 24.9 | 660 | 42641 | 1.8 | 790 | 747 | 0.0 | 920 | 24 | 0.0 |
| 405 | 201 | 0.0 | 535 | 44137 | 27.6 | 665 | 37602 | 1.1 | 795 | 639 | 0.0 | 925 | 22 | 0.0 |
| 410 | 457 | 0.0 | 540 | 46032 | 30.0 | 670 | 32798 | 0.7 | 800 | 547 | 0.0 | 930 | 22 | 0.0 |
| 415 | 925 | 0.0 | 545 | 48553 | 32.5 | 675 | 28558 | 0.5 | 805 | 473 | 0.0 | 935 | 17 | 0.0 |
| 420 | 1816 | 0.0 | 550 | 51408 | 34.9 | 680 | 24782 | 0.3 | 810 | 401 | 0.0 | 940 | 13 | 0.0 |
| 425 | 3217 | 0.0 | 555 | 54711 | 37.4 | 685 | 21386 | 0.2 | 815 | 351 | 0.0 | 945 | 6 | 0.0 |
| 430 | 5520 | 0.0 | 560 | 58847 | 40.0 | 690 | 18413 | 0.1 | 820 | 307 | 0.0 | 950 | 10 | 0.0 |
| 435 | 9225 | 0.1 | 565 | 63386 | 42.4 | 695 | 15721 | 0.1 | 825 | 261 | 0.0 | 955 | 11 | 0.0 |
| 440 | 15522 | 0.2 | 570 | 68196 | 44.3 | 700 | 13432 | 0.0 | 830 | 228 | 0.0 | 960 | 8 | 0.0 |
| 445 | 27642 | 0.6 | 575 | 73613 | 46.0 | 705 | 11513 | 0.0 | 835 | 193 | 0.0 | 965 | 12 | 0.0 |
| 450 | 36602 | 0.9 | 580 | 79207 | 47.1 | 710 | 9780 | 0.0 | 840 | 174 | 0.0 | 970 | 3 | 0.0 |
| 455 | 28292 | 0.9 | 585 | 84248 | 47.0 | 715 | 8356 | 0.0 | 845 | 151 | 0.0 | 975 | 8 | 0.0 |
| 460 | 21166 | 0.9 | 590 | 88397 | 45.7 | 720 | 7161 | 0.0 | 850 | 123 | 0.0 | 980 | 2 | 0.0 |
| 465 | 19092 | 1.0 | 595 | 91428 | 43.4 | 725 | 6067 | 0.0 | 855 | 106 | 0.0 | 985 | 13 | 0.0 |
| 470 | 14951 | 0.9 | 600 | 93452 | 40.3 | 730 | 5164 | 0.0 | 860 | 95 | 0.0 | 990 | 16 | 0.0 |
| 475 | 12606 | 1.0 | 605 | 93959 | 36.4 | 735 | 4393 | 0.0 | 865 | 82 | 0.0 | 995 | 20 | 0.0 |
| 480 | 13323 | 1.3 | 610 | 93079 | 32.0 | 740 | 3694 | 0.0 | 870 | 77 | 0.0 | 1000 | 0 | 0.0 |
| 485 | 15164 | 1.8 | 615 | 90707 | 27.3 | 745 | 3157 | 0.0 | 875 | 65 | 0.0 | | | |

REPORT NUMBER: SP1-2407-157-9

Scotopic Flux vs. Wavelength



Scotopic Lumens: 5286.7

S/P: 1.22

| 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 | 0 | 0.0 | 490 | 18018 | 75.9 | 620 | 87426 | 0.4 | 750 | 2680 | 0.0 | 880 | 58 | 0.0 |
| 365 | 0 | 0.0 | 495 | 22295 | 93.2 | 625 | 83013 | 0.2 | 755 | 2287 | 0.0 | 885 | 46 | 0.0 |
| 370 | 0 | 0.0 | 500 | 26478 | 107.8 | 630 | 78077 | 0.1 | 760 | 1944 | 0.0 | 890 | 45 | 0.0 |
| 375 | 0 | 0.0 | 505 | 30524 | 118.7 | 635 | 72080 | 0.1 | 765 | 1653 | 0.0 | 895 | 41 | 0.0 |
| 380 | 0 | 0.0 | 510 | 33611 | 122.2 | 640 | 66249 | 0.1 | 770 | 1413 | 0.0 | 900 | 38 | 0.0 |
| 385 | 0 | 0.0 | 515 | 36490 | 120.8 | 645 | 59973 | 0.0 | 775 | 1198 | 0.0 | 905 | 33 | 0.0 |
| 390 | 0 | 0.0 | 520 | 38610 | 113.9 | 650 | 53972 | 0.0 | 780 | 1025 | 0.0 | 910 | 30 | 0.0 |
| 395 | 0 | 0.0 | 525 | 40511 | 104.1 | 655 | 48369 | 0.0 | 785 | 874 | 0.0 | 915 | 23 | 0.0 |
| 400 | 48 | 0.0 | 530 | 42223 | 92.4 | 660 | 42641 | 0.0 | 790 | 747 | 0.0 | 920 | 24 | 0.0 |
| 405 | 201 | 0.0 | 535 | 44137 | 80.5 | 665 | 37602 | 0.0 | 795 | 639 | 0.0 | 925 | 22 | 0.0 |
| 410 | 457 | 0.1 | 540 | 46032 | 68.2 | 670 | 32798 | 0.0 | 800 | 547 | 0.0 | 930 | 22 | 0.0 |
| 415 | 925 | 0.3 | 545 | 48553 | 57.1 | 675 | 28558 | 0.0 | 805 | 473 | 0.0 | 935 | 17 | 0.0 |
| 420 | 1816 | 1.1 | 550 | 51408 | 46.7 | 680 | 24782 | 0.0 | 810 | 401 | 0.0 | 940 | 13 | 0.0 |
| 425 | 3217 | 2.5 | 555 | 54711 | 37.4 | 685 | 21386 | 0.0 | 815 | 351 | 0.0 | 945 | 6 | 0.0 |
| 430 | 5520 | 5.9 | 560 | 58847 | 29.4 | 690 | 18413 | 0.0 | 820 | 307 | 0.0 | 950 | 10 | 0.0 |
| 435 | 9225 | 12.5 | 565 | 63386 | 22.5 | 695 | 15721 | 0.0 | 825 | 261 | 0.0 | 955 | 11 | 0.0 |
| 440 | 15522 | 26.3 | 570 | 68196 | 16.9 | 700 | 13432 | 0.0 | 830 | 228 | 0.0 | 960 | 8 | 0.0 |
| 445 | 27642 | 55.2 | 575 | 73613 | 12.4 | 705 | 11513 | 0.0 | 835 | 193 | 0.0 | 965 | 12 | 0.0 |
| 450 | 36602 | 85.4 | 580 | 79207 | 9.0 | 710 | 9780 | 0.0 | 840 | 174 | 0.0 | 970 | 3 | 0.0 |
| 455 | 28292 | 75.1 | 585 | 84248 | 6.3 | 715 | 8356 | 0.0 | 845 | 151 | 0.0 | 975 | 8 | 0.0 |
| 460 | 21166 | 63.2 | 590 | 88397 | 4.4 | 720 | 7161 | 0.0 | 850 | 123 | 0.0 | 980 | 2 | 0.0 |
| 465 | 19092 | 63.2 | 595 | 91428 | 3.0 | 725 | 6067 | 0.0 | 855 | 106 | 0.0 | 985 | 13 | 0.0 |
| 470 | 14951 | 54.2 | 600 | 93452 | 2.0 | 730 | 5164 | 0.0 | 860 | 95 | 0.0 | 990 | 16 | 0.0 |
| 475 | 12606 | 48.8 | 605 | 93959 | 1.3 | 735 | 4393 | 0.0 | 865 | 82 | 0.0 | 995 | 20 | 0.0 |
| 480 | 13323 | 54.2 | 610 | 93079 | 0.9 | 740 | 3694 | 0.0 | 870 | 77 | 0.0 | 1000 | 0 | 0.0 |
| 485 | 15164 | 63.3 | 615 | 90707 | 0.5 | 745 | 3157 | 0.0 | 875 | 65 | 0.0 | | | |

REPORT NUMBER: SP1-2407-157-9

Melanopic Flux vs. Wavelength



Melanopic Lumens: 9797

M/P: 2.26

| 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 | 0 | 0.0 | 490 | 18018 | 27.7 | 620 | 87426 | 1.1 | 750 | 2680 | 0.0 | 880 | 58 | 0.0 |
| 365 | 0 | 0.0 | 495 | 22295 | 36.0 | 625 | 83013 | 0.7 | 755 | 2287 | 0.0 | 885 | 46 | 0.0 |
| 370 | 0 | 0.0 | 500 | 26478 | 44.2 | 630 | 78077 | 0.4 | 760 | 1944 | 0.0 | 890 | 45 | 0.0 |
| 375 | 0 | 0.0 | 505 | 30524 | 51.8 | 635 | 72080 | 0.3 | 765 | 1653 | 0.0 | 895 | 41 | 0.0 |
| 380 | 0 | 0.0 | 510 | 33611 | 57.0 | 640 | 66249 | 0.2 | 770 | 1413 | 0.0 | 900 | 38 | 0.0 |
| 385 | 0 | 0.0 | 515 | 36490 | 60.5 | 645 | 59973 | 0.1 | 775 | 1198 | 0.0 | 905 | 33 | 0.0 |
| 390 | 0 | 0.0 | 520 | 38610 | 61.4 | 650 | 53972 | 0.1 | 780 | 1025 | 0.0 | 910 | 30 | 0.0 |
| 395 | 0 | 0.0 | 525 | 40511 | 60.6 | 655 | 48369 | 0.0 | 785 | 874 | 0.0 | 915 | 23 | 0.0 |
| 400 | 48 | 0.0 | 530 | 42223 | 58.2 | 660 | 42641 | 0.0 | 790 | 747 | 0.0 | 920 | 24 | 0.0 |
| 405 | 201 | 0.0 | 535 | 44137 | 55.0 | 665 | 37602 | 0.0 | 795 | 639 | 0.0 | 925 | 22 | 0.0 |
| 410 | 457 | 0.0 | 540 | 46032 | 50.9 | 670 | 32798 | 0.0 | 800 | 547 | 0.0 | 930 | 22 | 0.0 |
| 415 | 925 | 0.1 | 545 | 48553 | 46.6 | 675 | 28558 | 0.0 | 805 | 473 | 0.0 | 935 | 17 | 0.0 |
| 420 | 1816 | 0.3 | 550 | 51408 | 42.0 | 680 | 24782 | 0.0 | 810 | 401 | 0.0 | 940 | 13 | 0.0 |
| 425 | 3217 | 0.8 | 555 | 54711 | 37.4 | 685 | 21386 | 0.0 | 815 | 351 | 0.0 | 945 | 6 | 0.0 |
| 430 | 5520 | 1.9 | 560 | 58847 | 32.9 | 690 | 18413 | 0.0 | 820 | 307 | 0.0 | 950 | 10 | 0.0 |
| 435 | 9225 | 4.1 | 565 | 63386 | 28.4 | 695 | 15721 | 0.0 | 825 | 261 | 0.0 | 955 | 11 | 0.0 |
| 440 | 15522 | 8.7 | 570 | 68196 | 24.1 | 700 | 13432 | 0.0 | 830 | 228 | 0.0 | 960 | 8 | 0.0 |
| 445 | 27642 | 18.5 | 575 | 73613 | 20.0 | 705 | 11513 | 0.0 | 835 | 193 | 0.0 | 965 | 12 | 0.0 |
| 450 | 36602 | 28.3 | 580 | 79207 | 16.3 | 710 | 9780 | 0.0 | 840 | 174 | 0.0 | 970 | 3 | 0.0 |
| 455 | 28292 | 24.7 | 585 | 84248 | 12.9 | 715 | 8356 | 0.0 | 845 | 151 | 0.0 | 975 | 8 | 0.0 |
| 460 | 21166 | 20.4 | 590 | 88397 | 9.8 | 720 | 7161 | 0.0 | 850 | 123 | 0.0 | 980 | 2 | 0.0 |
| 465 | 19092 | 20.1 | 595 | 91428 | 7.3 | 725 | 6067 | 0.0 | 855 | 106 | 0.0 | 985 | 13 | 0.0 |
| 470 | 14951 | 17.2 | 600 | 93452 | 5.3 | 730 | 5164 | 0.0 | 860 | 95 | 0.0 | 990 | 16 | 0.0 |
| 475 | 12606 | 15.7 | 605 | 93959 | 3.7 | 735 | 4393 | 0.0 | 865 | 82 | 0.0 | 995 | 20 | 0.0 |
| 480 | 13323 | 18.0 | 610 | 93079 | 2.5 | 740 | 3694 | 0.0 | 870 | 77 | 0.0 | 1000 | 0 | 0.0 |
| 485 | 15164 | 21.9 | 615 | 90707 | 1.7 | 745 | 3157 | 0.0 | 875 | 65 | 0.0 | | | |

Summary

$R_f = 84.7$
 $R_g = 94.6$
 CIE $R_a = 80.9$
 $R_9 = -1.5$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 84 | CES51 = 95 | CES76 = 81 |
| CES02 = 63 | CES27 = 95 | CES52 = 94 | CES77 = 84 |
| CES03 = 31 | CES28 = 94 | CES53 = 89 | CES78 = 81 |
| CES04 = 71 | CES29 = 87 | CES54 = 91 | CES79 = 89 |
| CES05 = 50 | CES30 = 94 | CES55 = 90 | CES80 = 89 |
| CES06 = 52 | CES31 = 89 | CES56 = 86 | CES81 = 69 |
| CES07 = 43 | CES32 = 82 | CES57 = 85 | CES82 = 96 |
| CES08 = 41 | CES33 = 91 | CES58 = 86 | CES83 = 93 |
| CES09 = 29 | CES34 = 92 | CES59 = 91 | CES84 = 92 |
| CES10 = 77 | CES35 = 96 | CES60 = 94 | CES85 = 76 |
| CES11 = 60 | CES36 = 90 | CES61 = 89 | CES86 = 65 |
| CES12 = 66 | CES37 = 96 | CES62 = 94 | CES87 = 84 |
| CES13 = 44 | CES38 = 98 | CES63 = 87 | CES88 = 86 |
| CES14 = 74 | CES39 = 98 | CES64 = 82 | CES89 = 73 |
| CES15 = 72 | CES40 = 95 | CES65 = 78 | CES90 = 88 |
| CES16 = 48 | CES41 = 96 | CES66 = 81 | CES91 = 82 |
| CES17 = 50 | CES42 = 97 | CES67 = 80 | CES92 = 64 |
| CES18 = 57 | CES43 = 91 | CES68 = 83 | CES93 = 78 |
| CES19 = 73 | CES44 = 99 | CES69 = 88 | CES94 = 59 |
| CES20 = 67 | CES45 = 93 | CES70 = 80 | CES95 = 74 |
| CES21 = 87 | CES46 = 89 | CES71 = 79 | CES96 = 83 |
| CES22 = 79 | CES47 = 92 | CES72 = 92 | CES97 = 88 |
| CES23 = 92 | CES48 = 83 | CES73 = 75 | CES98 = 83 |
| CES24 = 91 | CES49 = 90 | CES74 = 91 | CES99 = 74 |
| CES25 = 72 | CES50 = 94 | CES75 = 81 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)