

Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: McGRAW-EDISON

Report Number: P638782

Luminaire Tested: GWS-SA4F-740-U-T4W-W

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P638782
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-52)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA4F-740-U-T4W-W
Description: GALLEON WALL SLIM LUMINAIRE. (4) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV WIDE OPTICS
Light Source: (64) 4000K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 33733.1 lumens
Efficiency: N/A
Efficacy: 149.7 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type III - Short
BUG Rating: B3 - U0 - G5

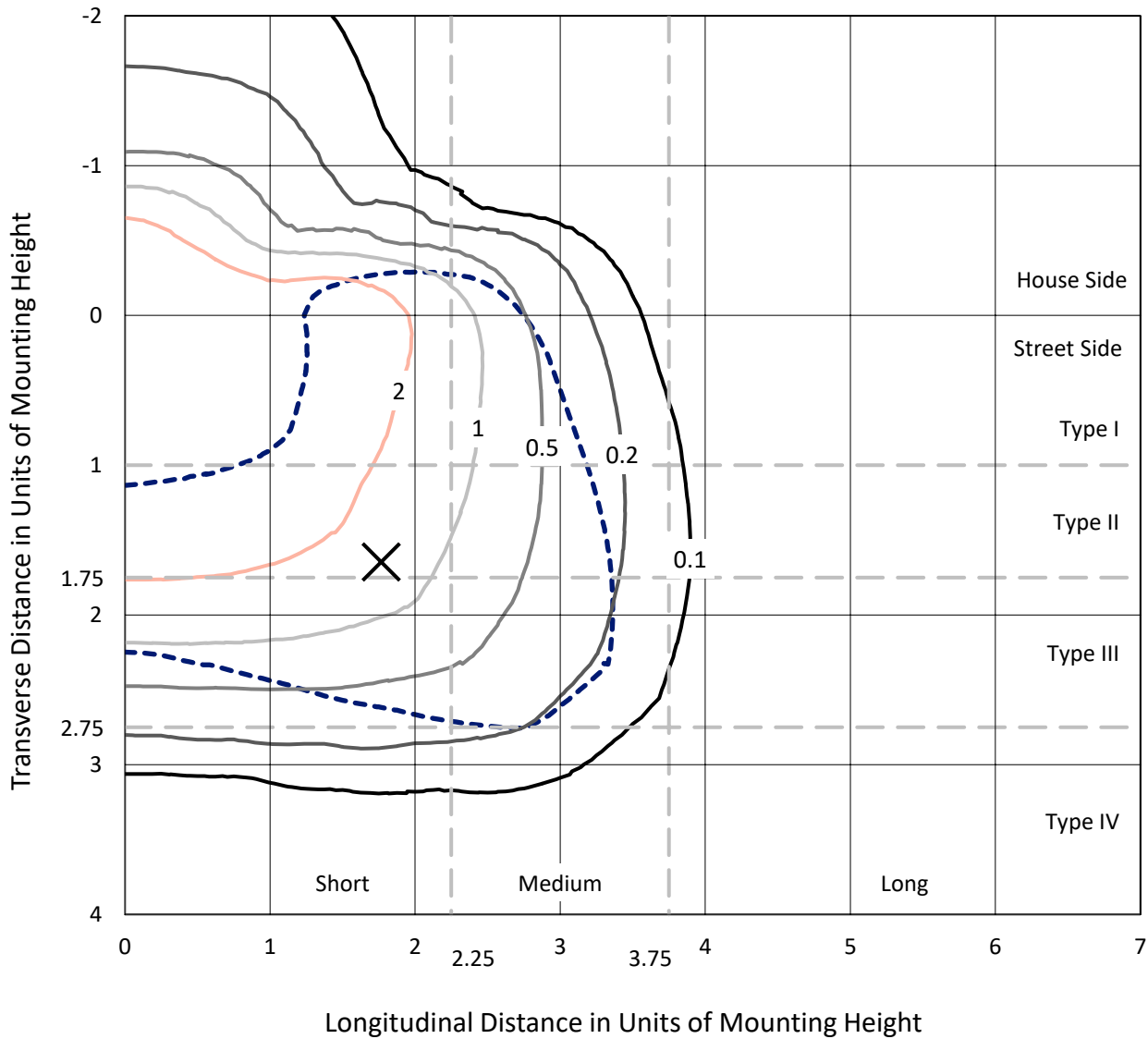
Input Watts (W): 225.3
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P638782
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Iso-Footcandle Lines of Horizontal Illumination

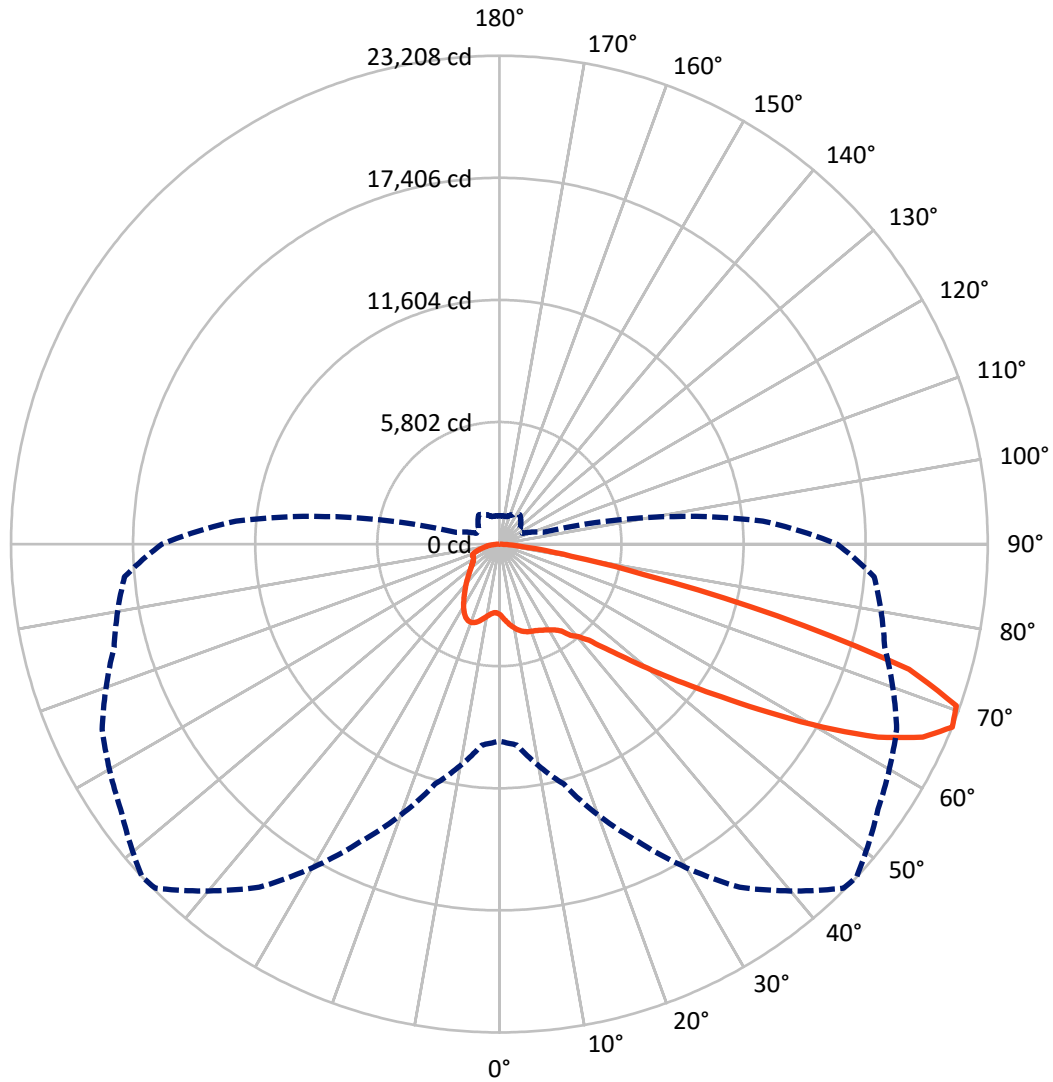
✕ Max cd
 - - - 1/2 Max cd



Based on 30 foot mounting height. Maximum calculated value = 4.7 fc
 Type III - Short - N/A

REPORT NUMBER: P638782
CATALOG NUMBER: GWS-SA4F-740-U-T4W-W

Luminous Intensity Polar Plot



— Vertical Plane Through 47-Deg Lateral - - - Horizontal Cone Through 67.5-Deg Vertical

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CATALOG NUMBER: GWS-SA4F-740-U-T4W-W

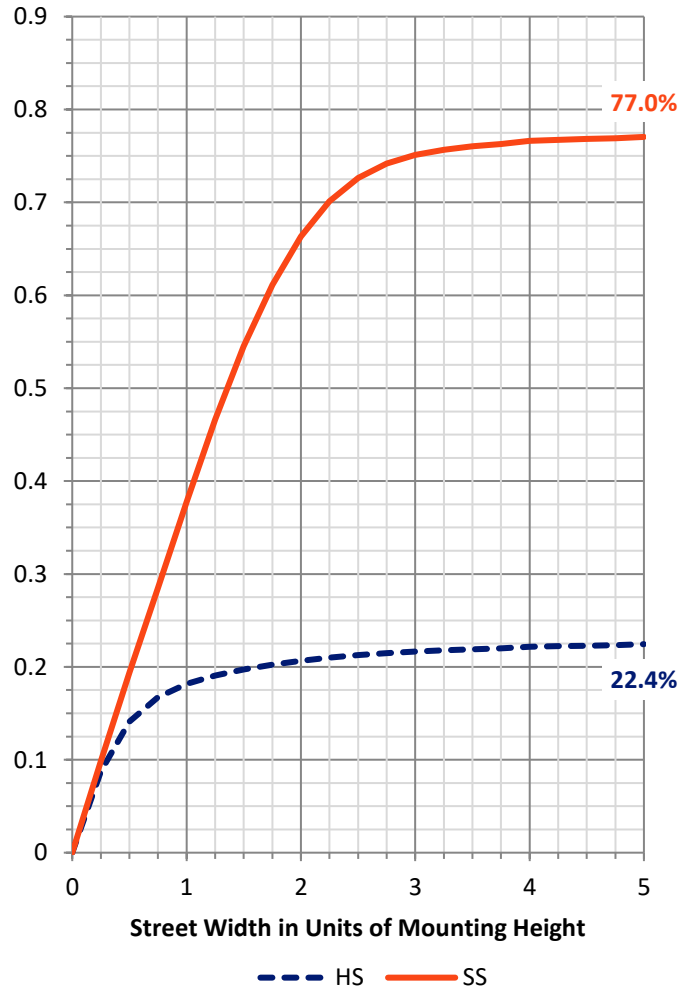
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 7688.0 | 0.0 | 7688.0 |
| | % Fixture | 22.8 | 0.0 | 22.8 |
| Street Side | Lumens | 26045.1 | 0.0 | 26045.1 |
| | % Fixture | 77.2 | 0.0 | 77.2 |
| Total | Lumens | 33733.1 | 0.0 | 33733.1 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 341.8 | 1.0 |
| 10°-20° | 1138.6 | 3.4 |
| 20°-30° | 1935.4 | 5.7 |
| 30°-40° | 2835.1 | 8.4 |
| 40°-50° | 4319.6 | 12.8 |
| 50°-60° | 7728.7 | 22.9 |
| 60°-70° | 10313.1 | 30.6 |
| 70°-80° | 4663.8 | 13.8 |
| 80°-90° | 456.9 | 1.4 |
| 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° | 33733.1 | 100.0 |
| 0°-180° | 33733.1 | 100.0 |

Coefficient of Utilization



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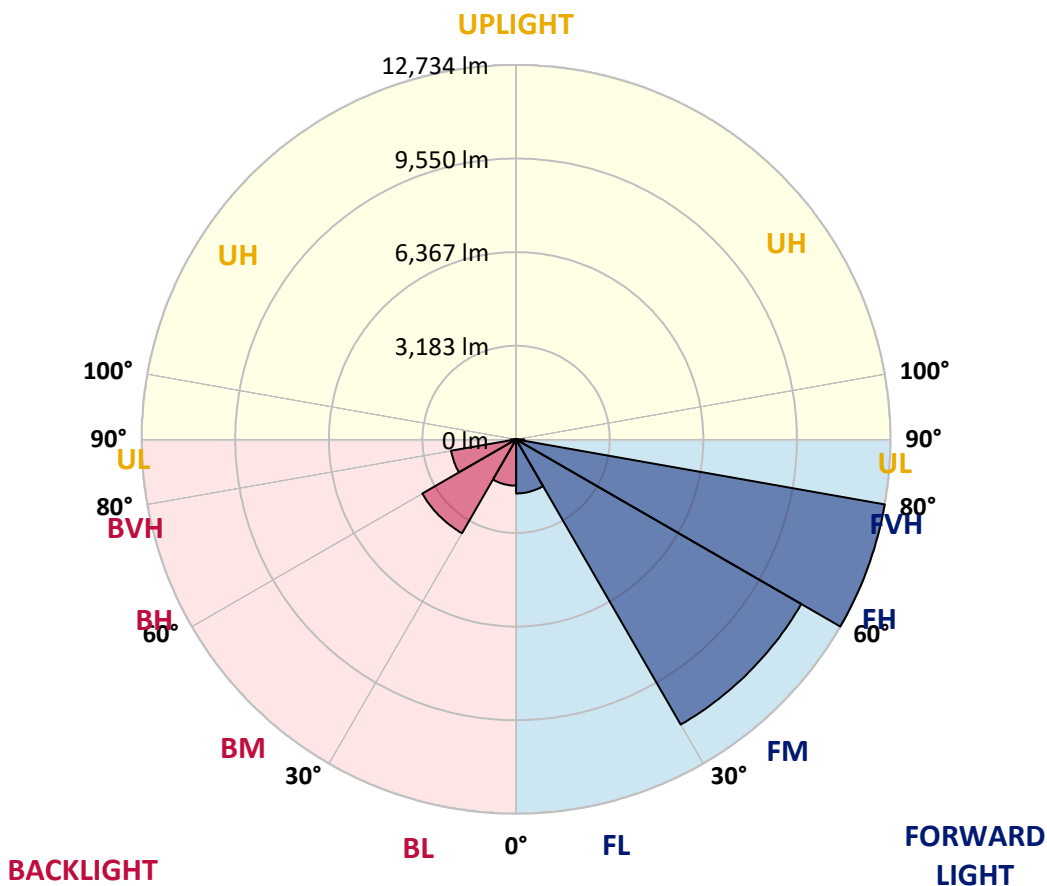
CATALOG NUMBER: GWS-SA4F-740-U-T4W-W

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|---------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1839.7 | 5.5 | | | |
| FM (30°-60°) | 11199.7 | 33.2 | | | |
| FH (60°-80°) | 12733.9 | 37.7 | | | G5 |
| FVH (80°-90°) | 271.8 | 0.8 | | | G3/500 |
| BL (0°-30°) | 1576.1 | 4.7 | B3/2500 | | |
| BM (30°-60°) | 3683.7 | 10.9 | B3/5000 | | |
| BH (60°-80°) | 2243.1 | 6.6 | B3/2500 | | G3/2500 |
| BVH (80°-90°) | 185.1 | 0.5 | | | G2/225 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B3-U0-G5

Type III Short





REPORT NUMBER: P638782

CATALOG NUMBER: GWS-SA4F-740-U-T4W-W

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 47° | 55° | 65° | 75° | 85° |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0° | 3344.0 | 3344.0 | 3344.0 | 3344.0 | 3344.0 | 3344.0 | 3344.0 | 3344.0 | 3344.0 | 3344.0 | 3344.0 |
| 2.5° | 3566.0 | 3578.2 | 3575.7 | 3556.2 | 3544.0 | 3522.1 | 3524.5 | 3490.4 | 3439.1 | 3405.0 | 3366.0 |
| 5° | 3880.6 | 3900.1 | 3875.7 | 3844.0 | 3795.3 | 3724.5 | 3717.2 | 3639.1 | 3541.6 | 3473.3 | 3402.6 |
| 7.5° | 4153.8 | 4166.0 | 4136.7 | 4083.1 | 4012.3 | 3917.2 | 3900.1 | 3807.4 | 3685.5 | 3578.2 | 3475.7 |
| 10° | 4366.0 | 4380.6 | 4341.6 | 4270.9 | 4178.2 | 4083.1 | 4070.9 | 3975.7 | 3846.5 | 3719.6 | 3590.4 |
| 12.5° | 4546.5 | 4551.4 | 4509.9 | 4414.8 | 4314.8 | 4217.2 | 4205.0 | 4117.2 | 3997.7 | 3868.4 | 3727.0 |
| 15° | 4651.4 | 4653.8 | 4602.6 | 4497.7 | 4402.6 | 4317.2 | 4309.9 | 4234.3 | 4124.5 | 4002.6 | 3851.4 |
| 17.5° | 4644.1 | 4648.9 | 4612.4 | 4519.7 | 4436.7 | 4385.5 | 4378.2 | 4329.4 | 4244.0 | 4134.3 | 3983.1 |
| 20° | 4553.8 | 4558.7 | 4534.3 | 4473.3 | 4429.4 | 4414.8 | 4417.2 | 4402.6 | 4351.4 | 4261.1 | 4107.5 |
| 22.5° | 4483.1 | 4490.4 | 4468.4 | 4424.5 | 4419.7 | 4453.8 | 4461.1 | 4468.4 | 4444.1 | 4363.6 | 4214.8 |
| 25° | 4517.2 | 4529.4 | 4495.3 | 4434.3 | 4444.1 | 4519.7 | 4534.3 | 4558.7 | 4539.2 | 4470.9 | 4341.6 |
| 27.5° | 4753.8 | 4761.1 | 4673.3 | 4548.9 | 4519.7 | 4600.2 | 4622.1 | 4661.1 | 4646.5 | 4583.1 | 4483.1 |
| 30° | 5302.6 | 5297.7 | 5109.9 | 4805.0 | 4683.1 | 4714.8 | 4731.9 | 4788.0 | 4792.8 | 4751.4 | 4656.3 |
| 32.5° | 6075.8 | 6051.4 | 5761.2 | 5275.8 | 4922.1 | 4844.1 | 4863.6 | 4939.2 | 4995.3 | 4951.4 | 4822.1 |
| 35° | 6892.9 | 6871.0 | 6551.4 | 5983.1 | 5363.6 | 5092.9 | 5070.9 | 5129.4 | 5214.8 | 5092.9 | 4907.5 |
| 37.5° | 7671.0 | 7636.8 | 7310.0 | 6607.5 | 5907.5 | 5529.5 | 5497.8 | 5439.2 | 5388.0 | 5153.8 | 5012.4 |
| 40° | 8534.4 | 8495.4 | 8210.0 | 7414.9 | 6507.5 | 5863.6 | 5783.1 | 5551.4 | 5505.1 | 5356.3 | 5285.5 |
| 42.5° | 9456.4 | 9456.4 | 9219.8 | 8436.9 | 7232.0 | 6341.7 | 6236.8 | 5888.0 | 5936.8 | 5839.2 | 5756.3 |
| 45° | 10378.4 | 10405.2 | 10217.4 | 9466.2 | 8200.3 | 7244.2 | 7075.9 | 6580.7 | 6697.8 | 6653.9 | 6612.4 |
| 47.5° | 11163.8 | 11215.0 | 11178.4 | 10517.4 | 9385.7 | 8341.8 | 8085.6 | 7571.0 | 7822.2 | 7927.1 | 8044.2 |
| 50° | 12010.2 | 12066.3 | 12029.7 | 11768.7 | 10773.5 | 9671.1 | 9441.8 | 8910.1 | 9341.8 | 9656.4 | 10039.4 |
| 52.5° | 13266.3 | 13346.8 | 13041.9 | 12941.9 | 12459.0 | 11180.9 | 10976.0 | 10371.1 | 11154.0 | 11676.0 | 12529.7 |
| 55° | 14327.3 | 14324.9 | 14217.6 | 14446.8 | 14268.8 | 13027.3 | 12800.4 | 12251.6 | 13251.7 | 13805.4 | 15054.2 |
| 57.5° | 14820.0 | 14878.6 | 15246.9 | 15895.7 | 16251.8 | 15283.5 | 15066.4 | 14505.4 | 15503.0 | 15790.8 | 17139.6 |
| 60° | 15073.7 | 15146.9 | 15859.1 | 17142.1 | 18100.6 | 17747.0 | 17661.6 | 16946.9 | 17507.9 | 17473.8 | 18898.2 |
| 62.5° | 14717.6 | 14863.9 | 16007.9 | 17712.8 | 19420.2 | 20222.6 | 20195.8 | 19115.3 | 19212.9 | 18878.7 | 19988.5 |
| 65° | 13083.4 | 13241.9 | 15037.1 | 17427.4 | 20173.9 | 22105.6 | 22113.0 | 21078.8 | 20522.7 | 19561.7 | 19805.6 |
| 67.5° | 9356.4 | 9583.3 | 11802.8 | 15593.2 | 19908.0 | 23122.7 | 23208.1 | 21969.1 | 20830.0 | 18956.8 | 17883.5 |
| 70° | 5100.2 | 5266.0 | 7005.1 | 11334.5 | 17512.8 | 22878.8 | 23037.4 | 21539.8 | 19473.8 | 16398.1 | 13766.3 |
| 72.5° | 2317.2 | 2370.8 | 3258.6 | 6219.7 | 11963.8 | 19693.4 | 20356.8 | 19222.6 | 15993.2 | 12112.6 | 8754.0 |
| 75° | 1061.0 | 1085.4 | 1419.6 | 2975.7 | 6251.4 | 13178.5 | 13644.4 | 14317.6 | 11129.7 | 7649.0 | 4563.6 |
| 77.5° | 665.9 | 673.2 | 807.3 | 1361.0 | 3117.2 | 6578.3 | 7068.5 | 8524.7 | 6517.3 | 3785.5 | 1907.4 |
| 80° | 392.7 | 400.0 | 502.5 | 736.6 | 1463.5 | 3009.9 | 3475.7 | 3370.8 | 3063.5 | 1634.2 | 868.3 |
| 82.5° | 197.6 | 204.9 | 290.3 | 419.5 | 797.6 | 1197.6 | 1409.8 | 1417.1 | 1141.5 | 885.4 | 490.3 |
| 85° | 70.7 | 73.2 | 95.1 | 165.9 | 339.0 | 395.1 | 441.5 | 539.0 | 558.6 | 514.7 | 236.6 |
| 87.5° | 0.0 | 0.0 | 2.4 | 4.9 | 9.8 | 39.0 | 41.5 | 78.1 | 163.4 | 182.9 | 95.1 |
| 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: P638782

CATALOG NUMBER: GWS-SA4F-740-U-T4W-W

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 3344.0 | 3344.0 | 3344.0 | 3344.0 | 3344.0 | 3344.0 | 3344.0 | 3344.0 | 3344.0 | 3344.0 | 3344.0 |
| 2.5° | 3353.8 | 3317.2 | 3305.0 | 3292.8 | 3273.3 | 3266.0 | 3251.3 | 3236.7 | 3236.7 | 3222.1 | 3214.7 |
| 5° | 3370.8 | 3322.1 | 3290.4 | 3275.7 | 3263.5 | 3270.8 | 3270.8 | 3275.7 | 3292.8 | 3283.0 | 3287.9 |
| 7.5° | 3431.8 | 3375.7 | 3331.8 | 3319.6 | 3319.6 | 3348.9 | 3368.4 | 3392.8 | 3424.5 | 3429.4 | 3429.4 |
| 10° | 3539.1 | 3473.3 | 3426.9 | 3419.6 | 3431.8 | 3473.3 | 3502.6 | 3531.8 | 3570.9 | 3573.3 | 3578.2 |
| 12.5° | 3656.2 | 3590.4 | 3544.0 | 3553.8 | 3566.0 | 3619.6 | 3651.3 | 3675.7 | 3714.8 | 3714.8 | 3712.3 |
| 15° | 3778.2 | 3705.0 | 3666.0 | 3685.5 | 3722.1 | 3783.1 | 3787.9 | 3790.4 | 3809.9 | 3805.0 | 3802.6 |
| 17.5° | 3905.0 | 3827.0 | 3797.7 | 3827.0 | 3866.0 | 3895.3 | 3870.9 | 3836.7 | 3829.4 | 3819.6 | 3814.8 |
| 20° | 4029.4 | 3948.9 | 3936.7 | 3958.7 | 3970.9 | 3946.5 | 3870.9 | 3807.4 | 3778.2 | 3763.5 | 3758.7 |
| 22.5° | 4136.7 | 4068.4 | 4061.1 | 4061.1 | 4000.1 | 3914.8 | 3802.6 | 3717.2 | 3678.2 | 3658.7 | 3653.8 |
| 25° | 4263.6 | 4200.1 | 4187.9 | 4122.1 | 3966.0 | 3809.9 | 3658.7 | 3580.6 | 3548.9 | 3539.1 | 3541.6 |
| 27.5° | 4412.3 | 4368.4 | 4329.4 | 4141.6 | 3868.4 | 3624.5 | 3453.8 | 3419.6 | 3407.4 | 3419.6 | 3426.9 |
| 30° | 4595.3 | 4551.4 | 4463.6 | 4117.2 | 3712.3 | 3383.0 | 3219.6 | 3217.2 | 3253.8 | 3285.5 | 3290.4 |
| 32.5° | 4744.1 | 4724.6 | 4580.6 | 4039.2 | 3492.8 | 3117.2 | 2978.2 | 2987.9 | 3053.8 | 3097.7 | 3105.0 |
| 35° | 4861.1 | 4892.9 | 4678.2 | 3909.9 | 3231.8 | 2866.0 | 2756.2 | 2761.1 | 2797.7 | 2858.6 | 2861.1 |
| 37.5° | 5027.0 | 5134.3 | 4766.0 | 3712.3 | 2931.8 | 2648.9 | 2548.9 | 2512.3 | 2507.4 | 2524.5 | 2529.4 |
| 40° | 5361.2 | 5522.1 | 4829.4 | 3424.5 | 2641.6 | 2453.7 | 2341.5 | 2270.8 | 2209.8 | 2163.5 | 2148.9 |
| 42.5° | 5866.1 | 6051.4 | 4866.0 | 3075.7 | 2383.0 | 2261.1 | 2134.2 | 2044.0 | 1936.7 | 1839.1 | 1804.9 |
| 45° | 6792.9 | 6853.9 | 4866.0 | 2705.0 | 2153.7 | 2080.6 | 1953.7 | 1846.4 | 1709.8 | 1595.2 | 1570.8 |
| 47.5° | 8275.9 | 8080.8 | 4870.9 | 2346.4 | 1951.3 | 1922.0 | 1812.3 | 1690.3 | 1539.1 | 1444.0 | 1429.3 |
| 50° | 10510.1 | 9824.7 | 4970.9 | 2048.9 | 1783.0 | 1787.9 | 1707.4 | 1573.2 | 1436.6 | 1365.9 | 1353.7 |
| 52.5° | 13041.9 | 11973.6 | 5239.2 | 1829.3 | 1641.5 | 1678.1 | 1634.2 | 1504.9 | 1383.0 | 1322.0 | 1309.8 |
| 55° | 15422.5 | 13949.3 | 5468.5 | 1673.2 | 1522.0 | 1585.4 | 1583.0 | 1463.5 | 1353.7 | 1292.7 | 1285.4 |
| 57.5° | 17446.9 | 15303.0 | 5434.3 | 1546.4 | 1419.6 | 1500.1 | 1536.6 | 1436.6 | 1334.2 | 1283.0 | 1275.7 |
| 60° | 18705.5 | 16020.1 | 4949.0 | 1429.3 | 1341.5 | 1439.1 | 1509.8 | 1429.3 | 1343.9 | 1331.8 | 1334.2 |
| 62.5° | 19251.9 | 15888.4 | 4017.2 | 1341.5 | 1290.3 | 1409.8 | 1539.1 | 1480.5 | 1434.2 | 1463.5 | 1480.5 |
| 65° | 18403.1 | 14756.6 | 2956.2 | 1275.7 | 1241.5 | 1417.1 | 1607.4 | 1561.0 | 1434.2 | 1453.7 | 1461.0 |
| 67.5° | 16046.9 | 12561.4 | 2136.7 | 1209.8 | 1180.5 | 1439.1 | 1704.9 | 1548.8 | 1351.3 | 1351.3 | 1336.6 |
| 70° | 11563.8 | 9034.5 | 1551.3 | 1143.9 | 1119.6 | 1407.4 | 1709.8 | 1465.9 | 1256.1 | 1248.8 | 1212.2 |
| 72.5° | 6958.8 | 5329.5 | 1209.8 | 1070.8 | 1026.9 | 1248.8 | 1602.5 | 1368.3 | 1163.5 | 1102.5 | 1058.6 |
| 75° | 3614.8 | 2670.8 | 1014.7 | 990.3 | 880.5 | 1058.6 | 1465.9 | 1217.1 | 995.2 | 941.5 | 917.1 |
| 77.5° | 1548.8 | 1248.8 | 870.8 | 883.0 | 731.7 | 890.3 | 1183.0 | 1053.7 | 883.0 | 814.7 | 792.7 |
| 80° | 763.4 | 709.8 | 687.8 | 707.3 | 585.4 | 687.8 | 1019.5 | 922.0 | 748.8 | 670.8 | 639.0 |
| 82.5° | 436.6 | 414.6 | 495.1 | 502.5 | 417.1 | 575.6 | 861.0 | 780.5 | 619.5 | 534.2 | 482.9 |
| 85° | 202.4 | 217.1 | 300.0 | 302.4 | 258.5 | 395.1 | 563.4 | 439.0 | 329.3 | 273.2 | 261.0 |
| 87.5° | 80.5 | 95.1 | 131.7 | 129.3 | 75.6 | 73.2 | 48.8 | 26.8 | 22.0 | 19.5 | 17.1 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

LM-79-08: Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Report Prepared for

Cooper Lighting Solutions

MCGRAW, INVUE, LUMARK AND STREETWORKS

DATA VALID FOR LUMINAIRES UTILIZING SA LIGHT ENGINES

Report Number: SP1-2101-121-2

Luminaire Tested: IFLD-S-SA2A-740-U-T3R-HSS

Test Date: 03/05/2021

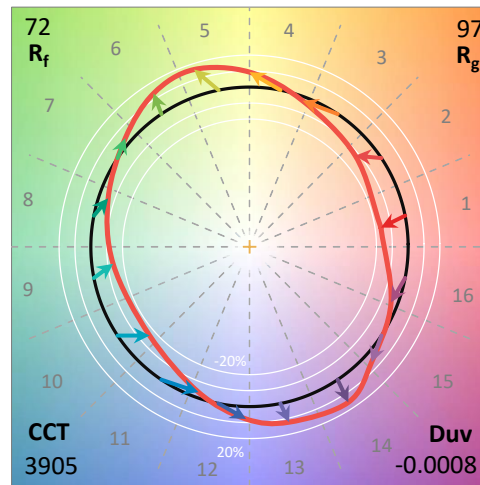
Test Information

Test Method: LM-79-08
 Report Number: SP1-2101-121-2
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1
 Measurement Geometry: 4π
 Issue Date: 03/05/2021
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: STREETWORKS
 Catalog Number: **IFLD-S-SA2A-740-U-T3R-HSS**
 Description: STREETWORKS INF FLOOD

SHIELD, DRIVER PROGRAMMED @ 615mA.

Spectral Parameters

| | | | | | |
|---------------------------|---------|-----------|------|------|-------|
| CCT (K): | 3905 | CRI (Ra): | 71.2 | R9: | -29.7 |
| CIE u': | 0.2273 | R1: | 68.9 | R10: | 46.2 |
| CIE v': | 0.5024 | R2: | 77.0 | R11: | 68.8 |
| Duv: | -0.0008 | R3: | 84.0 | R12: | 45.6 |
| CIE x: | 0.3841 | R4: | 71.6 | R13: | 69.5 |
| CIE y: | 0.3774 | R5: | 68.9 | R14: | 90.7 |
| CIE z: | 0.2385 | R6: | 68.3 | | |
| Peak Wavelength (nm): | 443 | R7: | 78.7 | | |
| Dominant Wavelength (nm): | 579 | R8: | 52.2 | | |
| Purity: | 28.7 | | | | |
| Rf: | 71.7 | | | | |
| Rg: | 96.9 | | | | |



Test Conditions

Stabilization Time: 211M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 24.8/312%
 Sphere Temperature (°C): 24.1

REPORT NUMBER: SP1-2101-121-2

| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 1/31/2021 | 7/31/2021 |
| Power Meter | IN0071 | 12/1/2020 | 12/1/2021 |
| AC Power Source | IN0063 | 12/1/2020 | 12/1/2021 |
| DC Power Source | IN0208 | 12/1/2020 | 12/1/2021 |
| Sphere Thermometer | IN0085 | 12/1/2020 | 12/1/2021 |
| Room Thermometer | IN0046 | 12/1/2020 | 12/1/2021 |

REPORT NUMBER: SP1-2101-121-2

CIE 1931 Chromaticity Diagram



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



CCT = 3905K
 CIE x = 0.3841
 CIE y = 0.3774
 Duv = -0.0008

Point lies inside the ANSI 4000K 4-step quadrangle

REPORT NUMBER: SP1-2101-121-2

Photopic Flux vs. Wavelength

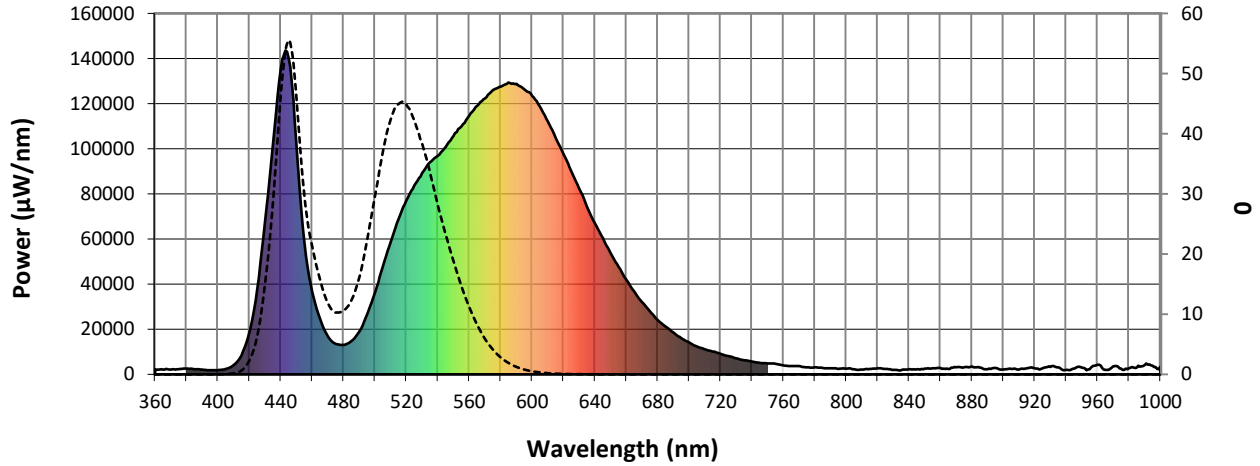


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| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 2304 | 0.0 | 490 | 19043 | 2.7 | 620 | 97577 | 25.4 | 750 | 4830 | 0.0 | 880 | 3505 | 0.0 |
| 365 | 2150 | 0.0 | 495 | 26606 | 4.8 | 625 | 90158 | 19.9 | 755 | 4664 | 0.0 | 885 | 2991 | 0.0 |
| 370 | 2146 | 0.0 | 500 | 36376 | 8.0 | 630 | 82240 | 14.9 | 760 | 4006 | 0.0 | 890 | 2327 | 0.0 |
| 375 | 2332 | 0.0 | 505 | 47714 | 13.3 | 635 | 74361 | 11.2 | 765 | 3715 | 0.0 | 895 | 2775 | 0.0 |
| 380 | 2527 | 0.0 | 510 | 58741 | 20.2 | 640 | 66994 | 8.0 | 770 | 3696 | 0.0 | 900 | 2141 | 0.0 |
| 385 | 2304 | 0.0 | 515 | 68716 | 28.5 | 645 | 60405 | 5.8 | 775 | 3117 | 0.0 | 905 | 2421 | 0.0 |
| 390 | 2064 | 0.0 | 520 | 77136 | 37.4 | 650 | 53806 | 3.9 | 780 | 3062 | 0.0 | 910 | 2200 | 0.0 |
| 395 | 1856 | 0.0 | 525 | 83567 | 44.9 | 655 | 47610 | 2.7 | 785 | 2907 | 0.0 | 915 | 2716 | 0.0 |
| 400 | 1856 | 0.0 | 530 | 89283 | 52.6 | 660 | 42018 | 1.8 | 790 | 2655 | 0.0 | 920 | 2656 | 0.0 |
| 405 | 2374 | 0.0 | 535 | 94097 | 58.4 | 665 | 36742 | 1.2 | 795 | 2467 | 0.0 | 925 | 2671 | 0.0 |
| 410 | 4084 | 0.0 | 540 | 96845 | 63.1 | 670 | 32105 | 0.7 | 800 | 2609 | 0.0 | 930 | 3292 | 0.0 |
| 415 | 8543 | 0.0 | 545 | 100829 | 67.1 | 675 | 27946 | 0.5 | 805 | 2293 | 0.0 | 935 | 3188 | 0.0 |
| 420 | 18394 | 0.1 | 550 | 105648 | 71.8 | 680 | 24146 | 0.3 | 810 | 2188 | 0.0 | 940 | 1997 | 0.0 |
| 425 | 37987 | 0.2 | 555 | 110017 | 75.1 | 685 | 21191 | 0.2 | 815 | 2386 | 0.0 | 945 | 2623 | 0.0 |
| 430 | 67605 | 0.5 | 560 | 114586 | 77.9 | 690 | 18544 | 0.1 | 820 | 2712 | 0.0 | 950 | 2969 | 0.0 |
| 435 | 102160 | 1.2 | 565 | 118987 | 79.1 | 695 | 16058 | 0.1 | 825 | 2473 | 0.0 | 955 | 2277 | 0.0 |
| 440 | 135103 | 2.1 | 570 | 122326 | 79.5 | 700 | 14133 | 0.0 | 830 | 1969 | 0.0 | 960 | 4267 | 0.0 |
| 445 | 140126 | 2.9 | 575 | 125968 | 78.4 | 705 | 12309 | 0.0 | 835 | 1917 | 0.0 | 965 | 2034 | 0.0 |
| 450 | 102339 | 2.7 | 580 | 127613 | 75.8 | 710 | 11142 | 0.0 | 840 | 2248 | 0.0 | 970 | 3586 | 0.0 |
| 455 | 58751 | 2.0 | 585 | 129466 | 71.9 | 715 | 10143 | 0.0 | 845 | 2266 | 0.0 | 975 | 2505 | 0.0 |
| 460 | 36892 | 1.5 | 590 | 128813 | 66.6 | 720 | 9072 | 0.0 | 850 | 2558 | 0.0 | 980 | 2666 | 0.0 |
| 465 | 24637 | 1.3 | 595 | 126387 | 59.9 | 725 | 8130 | 0.0 | 855 | 2767 | 0.0 | 985 | 2934 | 0.0 |
| 470 | 16738 | 1.0 | 600 | 123477 | 53.2 | 730 | 7149 | 0.0 | 860 | 2826 | 0.0 | 990 | 4120 | 0.0 |
| 475 | 13456 | 1.1 | 605 | 118718 | 46.0 | 735 | 6311 | 0.0 | 865 | 2385 | 0.0 | 995 | 3858 | 0.0 |
| 480 | 13081 | 1.2 | 610 | 112091 | 38.5 | 740 | 5711 | 0.0 | 870 | 3194 | 0.0 | 1000 | 3405 | 0.0 |
| 485 | 14734 | 1.7 | 615 | 105039 | 31.7 | 745 | 5111 | 0.0 | 875 | 3189 | 0.0 | | | |

REPORT NUMBER: SP1-2101-121-2

Scotopic Flux vs. Wavelength



Scotopic Lumens: 10425.8 S/P: 1.47

| 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 | 2304 | 0.0 | 490 | 19043 | 29.3 | 620 | 97577 | 1.2 | 750 | 4830 | 0.0 | 880 | 3505 | 0.0 |
| 365 | 2150 | 0.0 | 495 | 26606 | 43.0 | 625 | 90158 | 0.8 | 755 | 4664 | 0.0 | 885 | 2991 | 0.0 |
| 370 | 2146 | 0.0 | 500 | 36376 | 60.8 | 630 | 82240 | 0.5 | 760 | 4006 | 0.0 | 890 | 2327 | 0.0 |
| 375 | 2332 | 0.0 | 505 | 47714 | 81.1 | 635 | 74361 | 0.3 | 765 | 3715 | 0.0 | 895 | 2775 | 0.0 |
| 380 | 2527 | 0.0 | 510 | 58741 | 99.6 | 640 | 66994 | 0.2 | 770 | 3696 | 0.0 | 900 | 2141 | 0.0 |
| 385 | 2304 | 0.0 | 515 | 68716 | 113.9 | 645 | 60405 | 0.1 | 775 | 3117 | 0.0 | 905 | 2421 | 0.0 |
| 390 | 2064 | 0.0 | 520 | 77136 | 122.6 | 650 | 53806 | 0.1 | 780 | 3062 | 0.0 | 910 | 2200 | 0.0 |
| 395 | 1856 | 0.0 | 525 | 83567 | 125.0 | 655 | 47610 | 0.0 | 785 | 2907 | 0.0 | 915 | 2716 | 0.0 |
| 400 | 1856 | 0.0 | 530 | 89283 | 123.1 | 660 | 42018 | 0.0 | 790 | 2655 | 0.0 | 920 | 2656 | 0.0 |
| 405 | 2374 | 0.1 | 535 | 94097 | 117.3 | 665 | 36742 | 0.0 | 795 | 2467 | 0.0 | 925 | 2671 | 0.0 |
| 410 | 4084 | 0.2 | 540 | 96845 | 107.0 | 670 | 32105 | 0.0 | 800 | 2609 | 0.0 | 930 | 3292 | 0.0 |
| 415 | 8543 | 0.9 | 545 | 100829 | 96.7 | 675 | 27946 | 0.0 | 805 | 2293 | 0.0 | 935 | 3188 | 0.0 |
| 420 | 18394 | 3.0 | 550 | 105648 | 86.4 | 680 | 24146 | 0.0 | 810 | 2188 | 0.0 | 940 | 1997 | 0.0 |
| 425 | 37987 | 9.3 | 555 | 110017 | 75.2 | 685 | 21191 | 0.0 | 815 | 2386 | 0.0 | 945 | 2623 | 0.0 |
| 430 | 67605 | 23.0 | 560 | 114586 | 64.0 | 690 | 18544 | 0.0 | 820 | 2712 | 0.0 | 950 | 2969 | 0.0 |
| 435 | 102160 | 45.7 | 565 | 118987 | 53.4 | 695 | 16058 | 0.0 | 825 | 2473 | 0.0 | 955 | 2277 | 0.0 |
| 440 | 135103 | 75.5 | 570 | 122326 | 43.2 | 700 | 14133 | 0.0 | 830 | 1969 | 0.0 | 960 | 4267 | 0.0 |
| 445 | 140126 | 93.8 | 575 | 125968 | 34.3 | 705 | 12309 | 0.0 | 835 | 1917 | 0.0 | 965 | 2034 | 0.0 |
| 450 | 102339 | 79.3 | 580 | 127613 | 26.3 | 710 | 11142 | 0.0 | 840 | 2248 | 0.0 | 970 | 3586 | 0.0 |
| 455 | 58751 | 51.3 | 585 | 129466 | 19.8 | 715 | 10143 | 0.0 | 845 | 2266 | 0.0 | 975 | 2505 | 0.0 |
| 460 | 36892 | 35.6 | 590 | 128813 | 14.3 | 720 | 9072 | 0.0 | 850 | 2558 | 0.0 | 980 | 2666 | 0.0 |
| 465 | 24637 | 26.0 | 595 | 126387 | 10.1 | 725 | 8130 | 0.0 | 855 | 2767 | 0.0 | 985 | 2934 | 0.0 |
| 470 | 16738 | 19.3 | 600 | 123477 | 7.0 | 730 | 7149 | 0.0 | 860 | 2826 | 0.0 | 990 | 4120 | 0.0 |
| 475 | 13456 | 16.8 | 605 | 118718 | 4.7 | 735 | 6311 | 0.0 | 865 | 2385 | 0.0 | 995 | 3858 | 0.0 |
| 480 | 13081 | 17.7 | 610 | 112091 | 3.0 | 740 | 5711 | 0.0 | 870 | 3194 | 0.0 | 1000 | 3405 | 0.0 |
| 485 | 14734 | 21.4 | 615 | 105039 | 1.9 | 745 | 5111 | 0.0 | 875 | 3189 | 0.0 | | | |

REPORT NUMBER: SP1-2101-121-2

Melanopic Flux vs. Wavelength



Melanopic Lumens: 3927.2 M/P: 0.55

| 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 | 2304 | 0.0 | 490 | 19043 | 15.8 | 620 | 97577 | 0.1 | 750 | 4830 | 0.0 | 880 | 3505 | 0.0 |
| 365 | 2150 | 0.0 | 495 | 26606 | 22.0 | 625 | 90158 | 0.0 | 755 | 4664 | 0.0 | 885 | 2991 | 0.0 |
| 370 | 2146 | 0.0 | 500 | 36376 | 29.2 | 630 | 82240 | 0.0 | 760 | 4006 | 0.0 | 890 | 2327 | 0.0 |
| 375 | 2332 | 0.0 | 505 | 47714 | 36.6 | 635 | 74361 | 0.0 | 765 | 3715 | 0.0 | 895 | 2775 | 0.0 |
| 380 | 2527 | 0.0 | 510 | 58741 | 42.2 | 640 | 66994 | 0.0 | 770 | 3696 | 0.0 | 900 | 2141 | 0.0 |
| 385 | 2304 | 0.0 | 515 | 68716 | 44.9 | 645 | 60405 | 0.0 | 775 | 3117 | 0.0 | 905 | 2421 | 0.0 |
| 390 | 2064 | 0.0 | 520 | 77136 | 44.9 | 650 | 53806 | 0.0 | 780 | 3062 | 0.0 | 910 | 2200 | 0.0 |
| 395 | 1856 | 0.0 | 525 | 83567 | 42.4 | 655 | 47610 | 0.0 | 785 | 2907 | 0.0 | 915 | 2716 | 0.0 |
| 400 | 1856 | 0.0 | 530 | 89283 | 38.6 | 660 | 42018 | 0.0 | 790 | 2655 | 0.0 | 920 | 2656 | 0.0 |
| 405 | 2374 | 0.0 | 535 | 94097 | 33.9 | 665 | 36742 | 0.0 | 795 | 2467 | 0.0 | 925 | 2671 | 0.0 |
| 410 | 4084 | 0.2 | 540 | 96845 | 28.3 | 670 | 32105 | 0.0 | 800 | 2609 | 0.0 | 930 | 3292 | 0.0 |
| 415 | 8543 | 0.6 | 545 | 100829 | 23.4 | 675 | 27946 | 0.0 | 805 | 2293 | 0.0 | 935 | 3188 | 0.0 |
| 420 | 18394 | 2.1 | 550 | 105648 | 19.0 | 680 | 24146 | 0.0 | 810 | 2188 | 0.0 | 940 | 1997 | 0.0 |
| 425 | 37987 | 5.9 | 555 | 110017 | 14.8 | 685 | 21191 | 0.0 | 815 | 2386 | 0.0 | 945 | 2623 | 0.0 |
| 430 | 67605 | 14.3 | 560 | 114586 | 11.3 | 690 | 18544 | 0.0 | 820 | 2712 | 0.0 | 950 | 2969 | 0.0 |
| 435 | 102160 | 27.3 | 565 | 118987 | 8.4 | 695 | 16058 | 0.0 | 825 | 2473 | 0.0 | 955 | 2277 | 0.0 |
| 440 | 135103 | 45.1 | 570 | 122326 | 6.0 | 700 | 14133 | 0.0 | 830 | 1969 | 0.0 | 960 | 4267 | 0.0 |
| 445 | 140126 | 55.3 | 575 | 125968 | 4.2 | 705 | 12309 | 0.0 | 835 | 1917 | 0.0 | 965 | 2034 | 0.0 |
| 450 | 102339 | 47.2 | 580 | 127613 | 2.9 | 710 | 11142 | 0.0 | 840 | 2248 | 0.0 | 970 | 3586 | 0.0 |
| 455 | 58751 | 30.8 | 585 | 129466 | 1.9 | 715 | 10143 | 0.0 | 845 | 2266 | 0.0 | 975 | 2505 | 0.0 |
| 460 | 36892 | 21.7 | 590 | 128813 | 1.3 | 720 | 9072 | 0.0 | 850 | 2558 | 0.0 | 980 | 2666 | 0.0 |
| 465 | 24637 | 16.1 | 595 | 126387 | 0.8 | 725 | 8130 | 0.0 | 855 | 2767 | 0.0 | 985 | 2934 | 0.0 |
| 470 | 16738 | 12.0 | 600 | 123477 | 0.5 | 730 | 7149 | 0.0 | 860 | 2826 | 0.0 | 990 | 4120 | 0.0 |
| 475 | 13456 | 10.3 | 605 | 118718 | 0.3 | 735 | 6311 | 0.0 | 865 | 2385 | 0.0 | 995 | 3858 | 0.0 |
| 480 | 13081 | 10.5 | 610 | 112091 | 0.2 | 740 | 5711 | 0.0 | 870 | 3194 | 0.0 | 1000 | 3405 | 0.0 |
| 485 | 14734 | 12.1 | 615 | 105039 | 0.1 | 745 | 5111 | 0.0 | 875 | 3189 | 0.0 | | | |

Summary

$R_f = 71.7$
 $R_g = 96.9$
 CIE $R_a = 71.2$
 $R_g = -29.7$



Color Vector Graphics



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

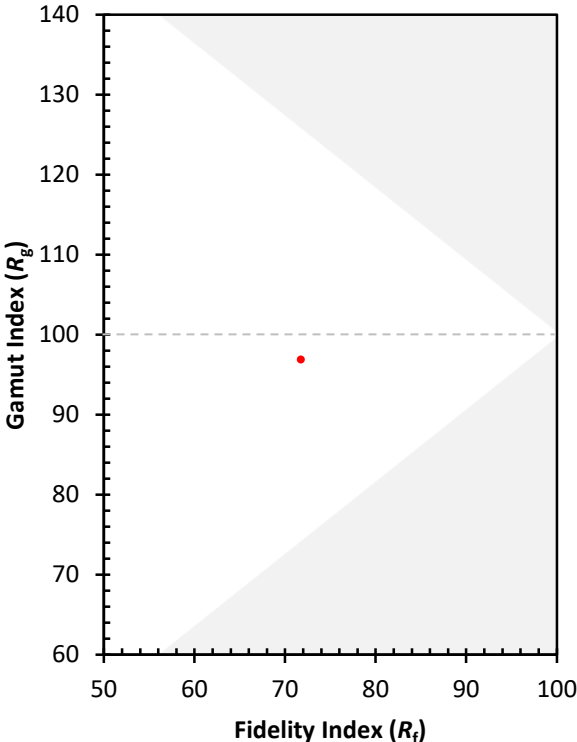
| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 55 | CES51 = 86 | CES76 = 45 |
| CES02 = 61 | CES27 = 80 | CES52 = 87 | CES77 = 68 |
| CES03 = 30 | CES28 = 79 | CES53 = 74 | CES78 = 49 |
| CES04 = 70 | CES29 = 51 | CES54 = 81 | CES79 = 77 |
| CES05 = 47 | CES30 = 60 | CES55 = 80 | CES80 = 75 |
| CES06 = 50 | CES31 = 56 | CES56 = 69 | CES81 = 75 |
| CES07 = 40 | CES32 = 52 | CES57 = 67 | CES82 = 90 |
| CES08 = 39 | CES33 = 62 | CES58 = 69 | CES83 = 85 |
| CES09 = 29 | CES34 = 65 | CES59 = 86 | CES84 = 87 |
| CES10 = 74 | CES35 = 81 | CES60 = 91 | CES85 = 83 |
| CES11 = 57 | CES36 = 92 | CES61 = 85 | CES86 = 72 |
| CES12 = 63 | CES37 = 74 | CES62 = 81 | CES87 = 77 |
| CES13 = 42 | CES38 = 69 | CES63 = 72 | CES88 = 77 |
| CES14 = 74 | CES39 = 92 | CES64 = 69 | CES89 = 72 |
| CES15 = 71 | CES40 = 86 | CES65 = 64 | CES90 = 75 |
| CES16 = 46 | CES41 = 84 | CES66 = 63 | CES91 = 91 |
| CES17 = 49 | CES42 = 75 | CES67 = 60 | CES92 = 66 |
| CES18 = 56 | CES43 = 70 | CES68 = 67 | CES93 = 80 |
| CES19 = 72 | CES44 = 98 | CES69 = 77 | CES94 = 56 |
| CES20 = 65 | CES45 = 80 | CES70 = 57 | CES95 = 72 |
| CES21 = 86 | CES46 = 77 | CES71 = 53 | CES96 = 78 |
| CES22 = 78 | CES47 = 74 | CES72 = 84 | CES97 = 83 |
| CES23 = 92 | CES48 = 66 | CES73 = 47 | CES98 = 73 |
| CES24 = 91 | CES49 = 76 | CES74 = 96 | CES99 = 63 |
| CES25 = 72 | CES50 = 85 | CES75 = 52 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)