

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: STREETWORKS

Report Number: P1379184

Luminaire Tested: **VAL-T-SB5B-730-U-SL4**

Issue Date: 02/18/2026

This test was performed under the Supervised Manufacturer's Testing Program. The results of this test have not been influenced by sources from within Cooper Lighting Solutions or from external interests.

Report Generated By 670245763



**Test Information**

Test Method: LM-79-08  
 Report Number: P1379184  
 Test Lab: INNOVATION CENTER(G3)  
 Issue Date: 02/18/2026  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: STREETWORKS  
 Catalog Number: VAL-T-SB5B-730-U-SL4  
 Description: GALLEON II WALL SLIM HIGH DENSITY LED ARRAYS 55 SQUARE 184W 70CRI  
 3000K FIXTURE w/ TYPE IV SPILL CONTROL DISTRIBUTION OPTIC  
 Light Source: (130) 3000K CCT, 70 CRI LEDS  
 Ballast/Driver: ELECTRONIC DRIVER

Luminaire Equipment:

| <u>Sample No.</u> | <u>Condition</u> | <u>Description</u> |
|-------------------|------------------|--------------------|
| a                 | good             | reflector          |
| b                 | good             | lens               |
| c                 | good             | housing            |
| d                 | good             | cord               |

**Summary**

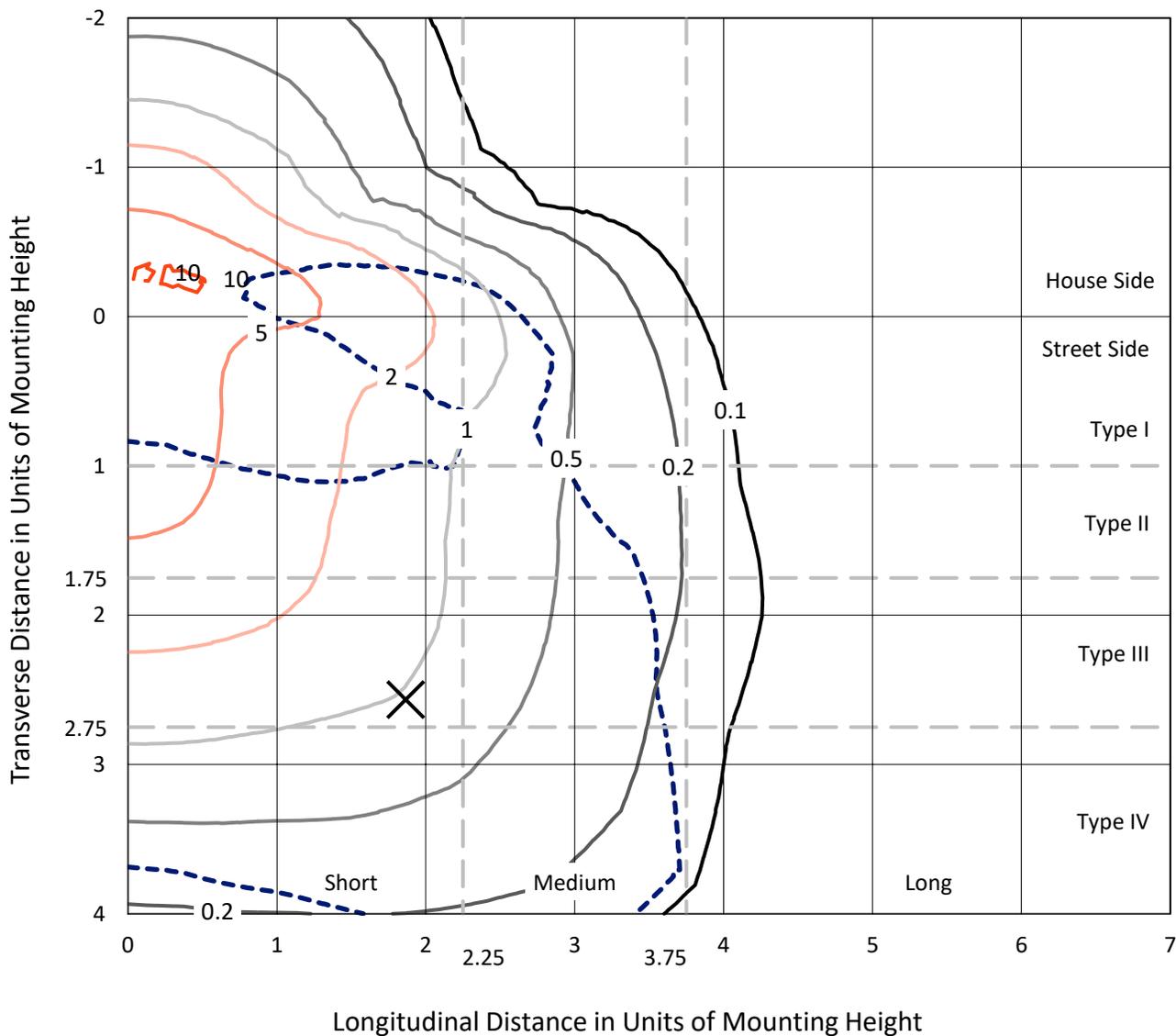
Lumens per Lamp: N/A  
 Luminaire Lumens: 26276 lumens  
 Efficiency: N/A  
 Efficacy: 142.8 lumens/watt  
 Luminous Opening: Rectangular (W 1.5' x L: 1' x H: 0')  
 IES Classification: Type IV - Short  
 BUG Rating: B3 - U0 - G4

Input Watts (W): 184  
 Input Voltage (V): 120  
 Input Current (Ain): NR  
 Voltage Rise (V): NR  
 Power Factor: 0.98  
 Total Harmonic Distortion (THDi): 11.1%  
 Frequency (hertz): 60  
 Stabilization Time: NR  
 Operation Time: NR  
 Ambient Temperature (°C): NR  
 Test Distance: 28.75 FT

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### Iso-Footcandle Lines of Horizontal Illumination

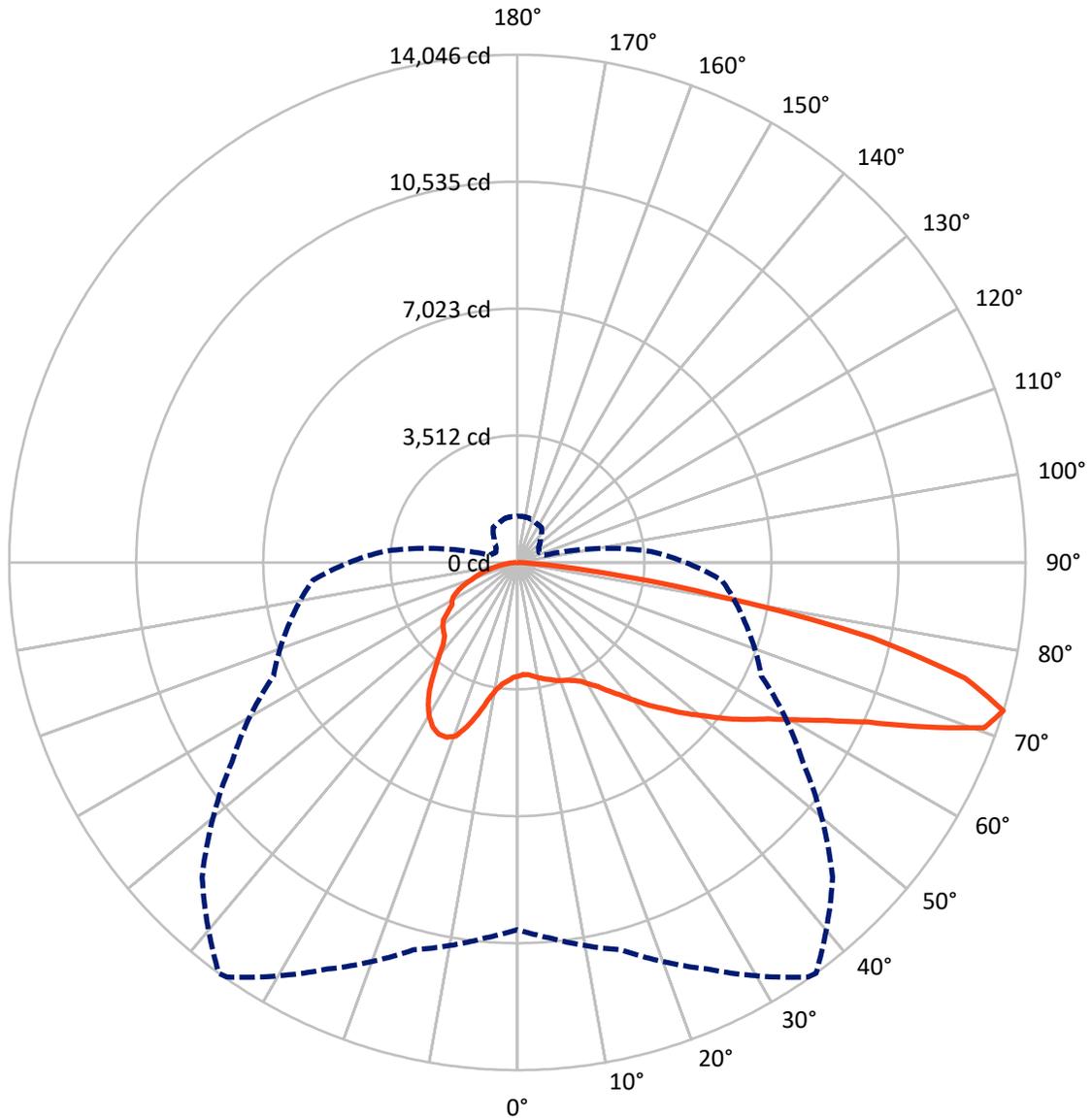
× Max cd  
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 10.6 fc  
 Type IV - Short - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 36-Deg Lateral    - - - Horizontal Cone Through 72.5-Deg Vertical

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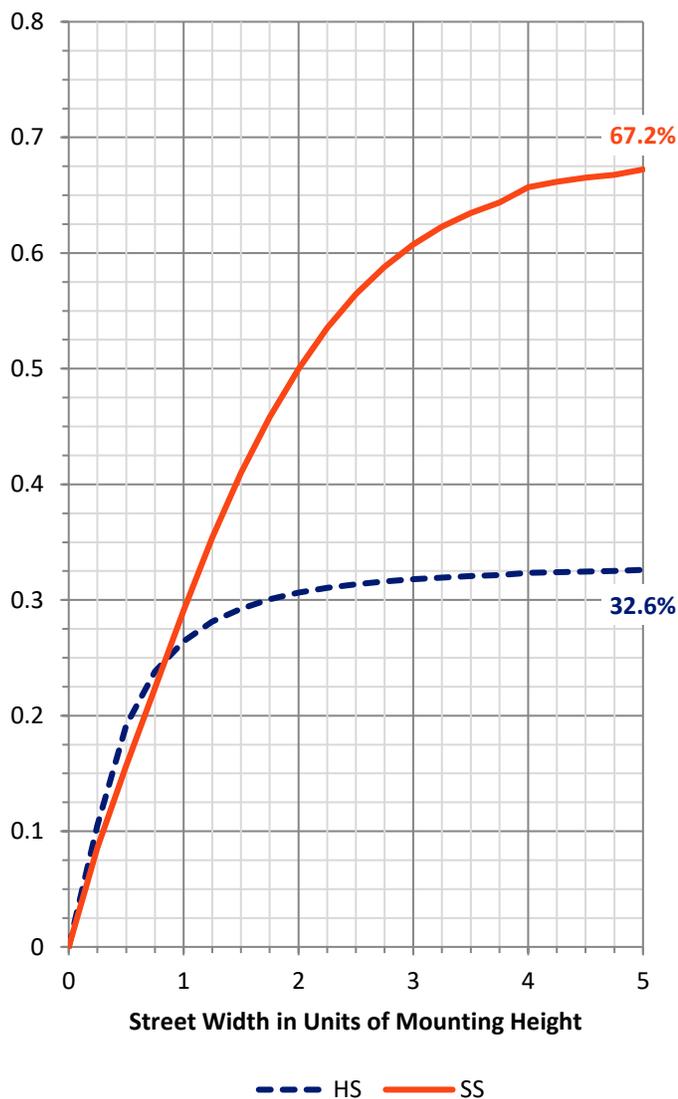
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 8647.2   | 0.0    | 8647.2  |
|                    | % Fixture | 32.9     | 0.0    | 32.9    |
| <b>Street Side</b> | Lumens    | 17628.9  | 0.0    | 17628.9 |
|                    | % Fixture | 67.1     | 0.0    | 67.1    |
| <b>Total</b>       | Lumens    | 26276.0  | 0.0    | 26276.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 311.5   | 1.2       |
| 10°-20°   | 1073.9  | 4.1       |
| 20°-30°   | 2039.0  | 7.8       |
| 30°-40°   | 2977.3  | 11.3      |
| 40°-50°   | 3960.0  | 15.1      |
| 50°-60°   | 5077.3  | 19.3      |
| 60°-70°   | 5972.5  | 22.7      |
| 70°-80°   | 4473.9  | 17.0      |
| 80°-90°   | 390.6   | 1.5       |
| 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°    | 26276.0 | 100.0     |
| 0°-180°   | 26276.0 | 100.0     |

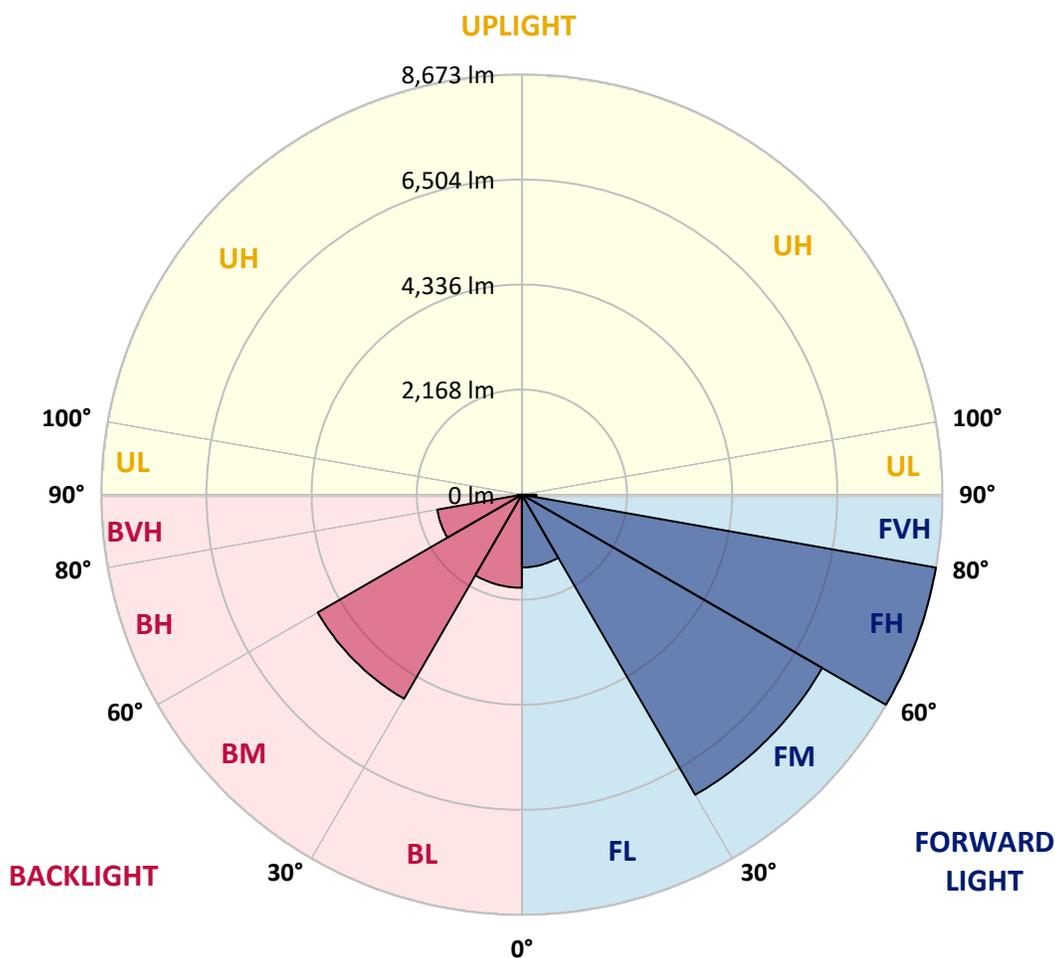


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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone           | Lumens | % Fixture | Zone Rating/Lumen Limit |      |          |
|----------------|--------|-----------|-------------------------|------|----------|
|                |        |           | B                       | U    | G        |
| FL (0°-30°)    | 1502.2 | 5.7       |                         |      |          |
| FM (30°-60°)   | 7153.2 | 27.2      |                         |      |          |
| FH (60°-80°)   | 8672.6 | 33.0      |                         |      | G4/12000 |
| FVH (80°-90°)  | 300.9  | 1.1       |                         |      | G3/500   |
| BL (0°-30°)    | 1922.2 | 7.3       | B3/2500                 |      |          |
| BM (30°-60°)   | 4861.4 | 18.5      | B3/5000                 |      |          |
| BH (60°-80°)   | 1773.8 | 6.8       | B3/2500                 |      | G3/2500  |
| BVH (80°-90°)  | 89.7   | 0.3       |                         |      | G1/100   |
| UL (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |          |
| UH (100°-180°) | 0.0    | 0.0       |                         | U0/0 |          |

**BUG Rating: B3-U0-G4**  
 Type IV Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 36°     | 45°     | 55°    | 65°    | 75°    | 85°    |
|-------|---------|---------|---------|---------|---------|---------|---------|--------|--------|--------|--------|
| 0°    | 3146.6  | 3146.6  | 3146.6  | 3146.6  | 3146.6  | 3146.6  | 3146.6  | 3146.6 | 3146.6 | 3146.6 | 3146.6 |
| 2.5°  | 3122.7  | 3104.8  | 3116.8  | 3104.8  | 3104.8  | 3104.8  | 3116.8  | 3116.8 | 3134.6 | 3134.6 | 3134.6 |
| 5°    | 3146.6  | 3140.6  | 3146.6  | 3140.6  | 3122.7  | 3122.7  | 3134.6  | 3122.7 | 3152.5 | 3140.6 | 3158.5 |
| 7.5°  | 3212.1  | 3200.2  | 3200.2  | 3182.3  | 3188.3  | 3176.4  | 3188.3  | 3170.4 | 3188.3 | 3176.4 | 3176.4 |
| 10°   | 3289.6  | 3271.7  | 3277.7  | 3253.8  | 3235.9  | 3241.9  | 3253.8  | 3235.9 | 3241.9 | 3247.9 | 3247.9 |
| 12.5° | 3355.1  | 3343.2  | 3343.2  | 3295.5  | 3307.5  | 3307.5  | 3319.4  | 3301.5 | 3313.4 | 3307.5 | 3331.3 |
| 15°   | 3438.6  | 3420.7  | 3408.8  | 3373.0  | 3367.1  | 3361.1  | 3379.0  | 3361.1 | 3390.9 | 3384.9 | 3414.7 |
| 17.5° | 3516.0  | 3498.2  | 3486.2  | 3426.6  | 3414.7  | 3432.6  | 3438.6  | 3426.6 | 3456.4 | 3468.4 | 3528.0 |
| 20°   | 3587.6  | 3593.5  | 3551.8  | 3480.3  | 3480.3  | 3486.2  | 3486.2  | 3486.2 | 3533.9 | 3551.8 | 3617.3 |
| 22.5° | 3712.7  | 3700.8  | 3659.1  | 3575.6  | 3539.9  | 3539.9  | 3593.5  | 3557.8 | 3587.6 | 3629.3 | 3742.5 |
| 25°   | 3873.6  | 3849.8  | 3778.3  | 3671.0  | 3611.4  | 3617.3  | 3635.2  | 3611.4 | 3647.1 | 3694.8 | 3867.6 |
| 27.5° | 4159.7  | 4129.9  | 4004.7  | 3790.2  | 3718.7  | 3724.6  | 3730.6  | 3665.0 | 3659.1 | 3736.5 | 3974.9 |
| 30°   | 4576.8  | 4541.1  | 4350.4  | 4082.2  | 3891.5  | 3903.4  | 3837.8  | 3718.7 | 3676.9 | 3760.4 | 4100.1 |
| 32.5° | 5029.7  | 4982.0  | 4791.3  | 4409.9  | 4153.7  | 4094.1  | 3969.0  | 3760.4 | 3694.8 | 3784.2 | 4213.3 |
| 35°   | 5572.0  | 5530.3  | 5297.9  | 4761.6  | 4409.9  | 4374.2  | 4123.9  | 3849.8 | 3742.5 | 3802.1 | 4320.6 |
| 37.5° | 6340.8  | 6233.5  | 5953.4  | 5214.5  | 4719.8  | 4666.2  | 4326.5  | 3974.9 | 3748.5 | 3790.2 | 4469.5 |
| 40°   | 7002.3  | 6895.0  | 6591.1  | 5786.6  | 5113.2  | 5029.7  | 4624.5  | 4123.9 | 3808.0 | 3814.0 | 4660.2 |
| 42.5° | 7693.6  | 7592.3  | 7264.5  | 6269.3  | 5464.8  | 5423.0  | 4886.7  | 4302.7 | 3885.5 | 3879.6 | 4874.8 |
| 45°   | 8420.6  | 8426.6  | 7920.0  | 6847.3  | 5881.9  | 5798.5  | 5208.5  | 4541.1 | 4028.5 | 3957.0 | 5226.4 |
| 47.5° | 9445.6  | 9332.4  | 8712.6  | 7401.6  | 6346.7  | 6239.5  | 5548.2  | 4791.3 | 4243.1 | 4135.8 | 5619.7 |
| 50°   | 10274.0 | 10190.6 | 9439.7  | 8039.2  | 6781.8  | 6668.6  | 5947.5  | 5065.5 | 4433.8 | 4386.1 | 6144.1 |
| 52.5° | 10965.3 | 10822.3 | 10131.0 | 8641.1  | 7270.5  | 7169.1  | 6275.2  | 5333.7 | 4702.0 | 4678.1 | 6757.9 |
| 55°   | 11346.7 | 11197.7 | 10607.7 | 9201.3  | 7824.7  | 7669.7  | 6644.7  | 5655.5 | 5023.8 | 5035.7 | 7443.3 |
| 57.5° | 11644.6 | 11489.7 | 10911.6 | 9624.4  | 8372.9  | 8164.4  | 7050.0  | 6007.1 | 5405.2 | 5518.4 | 8378.9 |
| 60°   | 11751.9 | 11597.0 | 11167.9 | 10184.6 | 8962.9  | 8831.8  | 7508.8  | 6442.1 | 5846.2 | 6084.5 | 9290.7 |
| 62.5° | 11906.9 | 11942.6 | 11638.7 | 10869.9 | 9731.7  | 9618.5  | 8098.8  | 6978.4 | 6388.5 | 6579.2 | 9612.5 |
| 65°   | 12032.0 | 12014.1 | 12049.9 | 11817.5 | 10804.4 | 10643.5 | 8974.8  | 7675.7 | 6752.0 | 6746.0 | 9451.6 |
| 67.5° | 11740.0 | 11757.9 | 11948.6 | 12520.7 | 12294.2 | 12139.3 | 10107.1 | 8319.3 | 6924.8 | 7061.9 | 8939.1 |
| 70°   | 11519.5 | 11573.1 | 11829.4 | 12544.5 | 13676.8 | 13694.7 | 11686.4 | 8867.6 | 7419.4 | 7061.9 | 7508.8 |
| 72.5° | 10160.8 | 10434.9 | 11096.4 | 12413.4 | 14004.6 | 14046.3 | 12324.0 | 9636.3 | 7437.3 | 6525.5 | 5673.3 |
| 75°   | 6728.2  | 6942.7  | 8706.7  | 11138.1 | 12842.5 | 12776.9 | 11412.2 | 9266.9 | 6960.6 | 5321.7 | 3611.4 |
| 77.5° | 1984.5  | 2389.7  | 4076.2  | 6906.9  | 9612.5  | 10029.7 | 9362.2  | 6340.8 | 5160.8 | 2497.0 | 1287.2 |
| 80°   | 566.1   | 631.7   | 1138.2  | 2425.5  | 5190.6  | 5637.6  | 5816.4  | 3033.3 | 1531.6 | 661.5  | 429.1  |
| 82.5° | 274.1   | 286.1   | 411.2   | 679.4   | 2222.9  | 2431.4  | 2038.1  | 917.7  | 411.2  | 238.4  | 166.9  |
| 85°   | 47.7    | 59.6    | 101.3   | 202.6   | 399.3   | 482.7   | 452.9   | 184.7  | 125.1  | 107.3  | 77.5   |
| 87.5° | 11.9    | 11.9    | 17.9    | 17.9    | 23.8    | 23.8    | 23.8    | 29.8   | 29.8   | 29.8   | 29.8   |
| 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: P1379184  
 CATALOG NUMBER: VAL-T-SB5B-730-U-SL4

**CANDELA DISTRIBUTION (continued):**

|       | 90°     | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 3146.6  | 3146.6 | 3146.6 | 3146.6 | 3146.6 | 3146.6 | 3146.6 | 3146.6 | 3146.6 | 3146.6 | 3146.6 |
| 2.5°  | 3164.4  | 3164.4 | 3188.3 | 3200.2 | 3200.2 | 3182.3 | 3182.3 | 3235.9 | 3212.1 | 3224.0 | 3218.1 |
| 5°    | 3170.4  | 3194.2 | 3194.2 | 3230.0 | 3247.9 | 3277.7 | 3289.6 | 3313.4 | 3337.3 | 3337.3 | 3331.3 |
| 7.5°  | 3206.2  | 3224.0 | 3253.8 | 3277.7 | 3325.3 | 3373.0 | 3390.9 | 3462.4 | 3474.3 | 3504.1 | 3492.2 |
| 10°   | 3259.8  | 3289.6 | 3337.3 | 3402.8 | 3462.4 | 3539.9 | 3575.6 | 3653.1 | 3694.8 | 3742.5 | 3712.7 |
| 12.5° | 3343.2  | 3379.0 | 3456.4 | 3545.8 | 3676.9 | 3796.1 | 3891.5 | 3969.0 | 4028.5 | 4082.2 | 4064.3 |
| 15°   | 3432.6  | 3504.1 | 3605.4 | 3766.3 | 3998.8 | 4213.3 | 4338.4 | 4469.5 | 4499.3 | 4547.0 | 4541.1 |
| 17.5° | 3587.6  | 3635.2 | 3837.8 | 4159.7 | 4463.6 | 4648.3 | 4755.6 | 4821.1 | 4803.3 | 4821.1 | 4809.2 |
| 20°   | 3712.7  | 3831.9 | 4195.4 | 4666.2 | 4964.2 | 5083.4 | 5095.3 | 5035.7 | 4910.5 | 4886.7 | 4839.0 |
| 22.5° | 3897.4  | 4076.2 | 4660.2 | 5148.9 | 5387.3 | 5375.4 | 5202.5 | 5023.8 | 4862.9 | 4797.3 | 4773.5 |
| 25°   | 4076.2  | 4398.0 | 5148.9 | 5607.8 | 5673.3 | 5464.8 | 5202.5 | 4970.1 | 4755.6 | 4690.0 | 4636.4 |
| 27.5° | 4302.7  | 4767.5 | 5703.1 | 5995.1 | 5798.5 | 5476.7 | 5089.3 | 4827.1 | 4624.5 | 4517.2 | 4493.4 |
| 30°   | 4535.1  | 5196.6 | 6168.0 | 6179.9 | 5834.2 | 5351.5 | 4880.7 | 4648.3 | 4415.9 | 4308.6 | 4314.6 |
| 32.5° | 4850.9  | 5667.4 | 6561.3 | 6317.0 | 5732.9 | 5101.2 | 4600.6 | 4350.4 | 4147.7 | 4094.1 | 4082.2 |
| 35°   | 5160.8  | 6197.8 | 6877.1 | 6328.9 | 5494.6 | 4749.6 | 4231.2 | 3951.1 | 3825.9 | 3772.3 | 3796.1 |
| 37.5° | 5601.8  | 6740.1 | 7061.9 | 6215.6 | 5148.9 | 4278.8 | 3796.1 | 3575.6 | 3480.3 | 3462.4 | 3486.2 |
| 40°   | 6084.5  | 7240.7 | 7181.1 | 6084.5 | 4678.1 | 3778.3 | 3379.0 | 3241.9 | 3182.3 | 3194.2 | 3235.9 |
| 42.5° | 6603.0  | 7651.9 | 7270.5 | 5786.6 | 4123.9 | 3319.4 | 3045.2 | 2985.7 | 3075.0 | 3128.7 | 3164.4 |
| 45°   | 7157.2  | 8027.3 | 7300.3 | 5363.5 | 3605.4 | 2967.8 | 2854.5 | 2967.8 | 3104.8 | 3128.7 | 3146.6 |
| 47.5° | 7705.5  | 8355.1 | 7300.3 | 4803.3 | 3110.8 | 2735.4 | 2795.0 | 2943.9 | 3051.2 | 3009.5 | 3015.5 |
| 50°   | 8229.9  | 8617.3 | 7282.4 | 4153.7 | 2765.2 | 2616.2 | 2717.5 | 2812.8 | 2765.2 | 2646.0 | 2657.9 |
| 52.5° | 8706.7  | 8849.7 | 7157.2 | 3486.2 | 2479.1 | 2586.4 | 2592.3 | 2473.1 | 2365.9 | 2306.3 | 2318.2 |
| 55°   | 9237.1  | 9064.2 | 6787.7 | 2890.3 | 2294.4 | 2508.9 | 2342.0 | 2187.1 | 2240.7 | 2222.9 | 2216.9 |
| 57.5° | 9791.3  | 9314.5 | 6281.2 | 2377.8 | 2121.5 | 2324.2 | 2139.4 | 2127.5 | 2121.5 | 2097.7 | 2067.9 |
| 60°   | 10268.0 | 9517.1 | 5524.4 | 1871.2 | 1865.3 | 2044.1 | 2097.7 | 2067.9 | 2038.1 | 1990.4 | 1966.6 |
| 62.5° | 9993.9  | 9010.6 | 4415.9 | 1513.7 | 1603.1 | 1823.6 | 2020.2 | 1960.6 | 1966.6 | 1924.9 | 1907.0 |
| 65°   | 9219.2  | 8009.4 | 3009.5 | 1263.4 | 1352.8 | 1626.9 | 1835.5 | 1781.9 | 1752.1 | 1740.1 | 1728.2 |
| 67.5° | 8218.0  | 6936.7 | 1984.5 | 1001.2 | 1132.3 | 1424.3 | 1621.0 | 1555.4 | 1597.1 | 1597.1 | 1591.2 |
| 70°   | 6465.9  | 5303.9 | 1251.5 | 816.4  | 899.9  | 1180.0 | 1346.8 | 1376.6 | 1436.2 | 1442.2 | 1436.2 |
| 72.5° | 4648.3  | 3629.3 | 780.7  | 655.5  | 715.1  | 899.9  | 1174.0 | 1203.8 | 1269.3 | 1281.3 | 1281.3 |
| 75°   | 2741.3  | 2044.1 | 524.4  | 524.4  | 554.2  | 733.0  | 971.4  | 1066.7 | 1096.5 | 1108.4 | 1096.5 |
| 77.5° | 1102.5  | 786.6  | 345.6  | 387.4  | 429.1  | 590.0  | 744.9  | 864.1  | 852.2  | 846.2  | 816.4  |
| 80°   | 393.3   | 339.7  | 238.4  | 256.3  | 309.9  | 441.0  | 554.2  | 590.0  | 625.7  | 607.9  | 590.0  |
| 82.5° | 160.9   | 154.9  | 149.0  | 166.9  | 184.7  | 268.2  | 387.4  | 387.4  | 393.3  | 387.4  | 381.4  |
| 85°   | 59.6    | 59.6   | 71.5   | 83.4   | 101.3  | 125.1  | 172.8  | 220.5  | 184.7  | 131.1  | 137.1  |
| 87.5° | 29.8    | 29.8   | 23.8   | 23.8   | 29.8   | 41.7   | 41.7   | 53.6   | 53.6   | 29.8   | 17.9   |
| 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

McGraw-Edison

Report Number: SP1-2407-184-4

Test Date: 10/10/2024

Luminaire Tested: GSS-SB1A-730-U-5WQ

Data in this report applies to families of products including GSS-SB1A-730-U-5WQ

**Test Information**

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-4  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry: 4π  
 Issue Date: 10/15/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: McGraw-Edison  
 Catalog Number: **GSS-SB1A-730-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI 3000K CCT 26 LEDS

**Spectral Parameters**

CCT (K): 2985  
 CIE u': 0.2504  
 CIE v': 0.5243  
 Duv: 0.0019  
 CIE x: 0.4408  
 CIE y: 0.4101  
 CIE z: 0.1491  
 Peak Wavelength (nm): 595  
 Dominant Wavelength (nm): 582  
 Purity: 55.41818  
 Rf: 73.8  
 Rg: 94.4

|           |      |      |       |
|-----------|------|------|-------|
| CRI (Ra): | 70.8 |      |       |
| R1:       | 66.3 | R9:  | -43.2 |
| R2:       | 80.6 | R10: | 57.6  |
| R3:       | 94.5 | R11: | 64.8  |
| R4:       | 68.2 | R12: | 53.5  |
| R5:       | 66.5 | R13: | 68.7  |
| R6:       | 74.7 | R14: | 97.0  |
| R7:       | 76.2 | R15: | 56.4  |
| R8:       | 39.6 |      |       |



**Test Conditions**

Stabilization Time: 36M  
 Operation Time: 1H 36M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-4

| 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 3000K 4-step quadrangle

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**Photopic Flux vs. Wavelength**



**Photopic Lumens: NR**

| λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 142                      | NR            | 620    | 803                      | NR            | 750    | 17                       | NR            | 880    | 0                        | NR            |
| 365    | 0                        | NR            | 495    | 189                      | NR            | 625    | 734                      | NR            | 755    | 15                       | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 240                      | NR            | 630    | 670                      | NR            | 760    | 13                       | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 290                      | NR            | 635    | 600                      | NR            | 765    | 11                       | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 335                      | NR            | 640    | 535                      | NR            | 770    | 9                        | NR            | 900    | 0                        | NR            |
| 385    | 0                        | NR            | 515    | 375                      | NR            | 645    | 473                      | NR            | 775    | 8                        | NR            | 905    | 0                        | NR            |
| 390    | 1                        | NR            | 520    | 408                      | NR            | 650    | 415                      | NR            | 780    | 7                        | NR            | 910    | 0                        | NR            |
| 395    | 2                        | NR            | 525    | 434                      | NR            | 655    | 362                      | NR            | 785    | 6                        | NR            | 915    | 0                        | NR            |
| 400    | 4                        | NR            | 530    | 461                      | NR            | 660    | 313                      | NR            | 790    | 5                        | NR            | 920    | 0                        | NR            |
| 405    | 8                        | NR            | 535    | 486                      | NR            | 665    | 271                      | NR            | 795    | 4                        | NR            | 925    | 0                        | NR            |
| 410    | 16                       | NR            | 540    | 514                      | NR            | 670    | 231                      | NR            | 800    | 4                        | NR            | 930    | 0                        | NR            |
| 415    | 33                       | NR            | 545    | 549                      | NR            | 675    | 198                      | NR            | 805    | 3                        | NR            | 935    | 0                        | NR            |
| 420    | 69                       | NR            | 550    | 591                      | NR            | 680    | 169                      | NR            | 810    | 3                        | NR            | 940    | 0                        | NR            |
| 425    | 131                      | NR            | 555    | 640                      | NR            | 685    | 144                      | NR            | 815    | 2                        | NR            | 945    | 0                        | NR            |
| 430    | 227                      | NR            | 560    | 695                      | NR            | 690    | 123                      | NR            | 820    | 2                        | NR            | 950    | 0                        | NR            |
| 435    | 369                      | NR            | 565    | 757                      | NR            | 695    | 104                      | NR            | 825    | 2                        | NR            | 955    | 0                        | NR            |
| 440    | 517                      | NR            | 570    | 822                      | NR            | 700    | 88                       | NR            | 830    | 2                        | NR            | 960    | 0                        | NR            |
| 445    | 498                      | NR            | 575    | 882                      | NR            | 705    | 75                       | NR            | 835    | 1                        | NR            | 965    | 0                        | NR            |
| 450    | 315                      | NR            | 580    | 935                      | NR            | 710    | 63                       | NR            | 840    | 1                        | NR            | 970    | 0                        | NR            |
| 455    | 204                      | NR            | 585    | 972                      | NR            | 715    | 54                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 145                      | NR            | 590    | 996                      | NR            | 720    | 46                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 100                      | NR            | 595    | 1000                     | NR            | 725    | 39                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 78                       | NR            | 600    | 989                      | NR            | 730    | 33                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 76                       | NR            | 605    | 960                      | NR            | 735    | 28                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 83                       | NR            | 610    | 918                      | NR            | 740    | 24                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 105                      | NR            | 615    | 864                      | NR            | 745    | 20                       | NR            | 875    | 1                        | NR            |        |                          |               |

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**Scotopic Flux vs. Wavelength**



**Scotopic Lumens: NR**

**S/P: 1.19**

| λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 142                      | NR            | 620    | 803                      | NR            | 750    | 17                       | NR            | 880    | 0                        | NR            |
| 365    | 0                        | NR            | 495    | 189                      | NR            | 625    | 734                      | NR            | 755    | 15                       | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 240                      | NR            | 630    | 670                      | NR            | 760    | 13                       | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 290                      | NR            | 635    | 600                      | NR            | 765    | 11                       | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 335                      | NR            | 640    | 535                      | NR            | 770    | 9                        | NR            | 900    | 0                        | NR            |
| 385    | 0                        | NR            | 515    | 375                      | NR            | 645    | 473                      | NR            | 775    | 8                        | NR            | 905    | 0                        | NR            |
| 390    | 1                        | NR            | 520    | 408                      | NR            | 650    | 415                      | NR            | 780    | 7                        | NR            | 910    | 0                        | NR            |
| 395    | 2                        | NR            | 525    | 434                      | NR            | 655    | 362                      | NR            | 785    | 6                        | NR            | 915    | 0                        | NR            |
| 400    | 4                        | NR            | 530    | 461                      | NR            | 660    | 313                      | NR            | 790    | 5                        | NR            | 920    | 0                        | NR            |
| 405    | 8                        | NR            | 535    | 486                      | NR            | 665    | 271                      | NR            | 795    | 4                        | NR            | 925    | 0                        | NR            |
| 410    | 16                       | NR            | 540    | 514                      | NR            | 670    | 231                      | NR            | 800    | 4                        | NR            | 930    | 0                        | NR            |
| 415    | 33                       | NR            | 545    | 549                      | NR            | 675    | 198                      | NR            | 805    | 3                        | NR            | 935    | 0                        | NR            |
| 420    | 69                       | NR            | 550    | 591                      | NR            | 680    | 169                      | NR            | 810    | 3                        | NR            | 940    | 0                        | NR            |
| 425    | 131                      | NR            | 555    | 640                      | NR            | 685    | 144                      | NR            | 815    | 2                        | NR            | 945    | 0                        | NR            |
| 430    | 227                      | NR            | 560    | 695                      | NR            | 690    | 123                      | NR            | 820    | 2                        | NR            | 950    | 0                        | NR            |
| 435    | 369                      | NR            | 565    | 757                      | NR            | 695    | 104                      | NR            | 825    | 2                        | NR            | 955    | 0                        | NR            |
| 440    | 517                      | NR            | 570    | 822                      | NR            | 700    | 88                       | NR            | 830    | 2                        | NR            | 960    | 0                        | NR            |
| 445    | 498                      | NR            | 575    | 882                      | NR            | 705    | 75                       | NR            | 835    | 1                        | NR            | 965    | 0                        | NR            |
| 450    | 315                      | NR            | 580    | 935                      | NR            | 710    | 63                       | NR            | 840    | 1                        | NR            | 970    | 0                        | NR            |
| 455    | 204                      | NR            | 585    | 972                      | NR            | 715    | 54                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 145                      | NR            | 590    | 996                      | NR            | 720    | 46                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 100                      | NR            | 595    | 1000                     | NR            | 725    | 39                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 78                       | NR            | 600    | 989                      | NR            | 730    | 33                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 76                       | NR            | 605    | 960                      | NR            | 735    | 28                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 83                       | NR            | 610    | 918                      | NR            | 740    | 24                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 105                      | NR            | 615    | 864                      | NR            | 745    | 20                       | NR            | 875    | 1                        | NR            |        |                          |               |

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**Melanopic Flux vs. Wavelength**



**Melanopic Lumens: NR**

**M/P: 2.13**

| λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 142                      | NR            | 620    | 803                      | NR            | 750    | 17                       | NR            | 880    | 0                        | NR            |
| 365    | 0                        | NR            | 495    | 189                      | NR            | 625    | 734                      | NR            | 755    | 15                       | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 240                      | NR            | 630    | 670                      | NR            | 760    | 13                       | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 290                      | NR            | 635    | 600                      | NR            | 765    | 11                       | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 335                      | NR            | 640    | 535                      | NR            | 770    | 9                        | NR            | 900    | 0                        | NR            |
| 385    | 0                        | NR            | 515    | 375                      | NR            | 645    | 473                      | NR            | 775    | 8                        | NR            | 905    | 0                        | NR            |
| 390    | 1                        | NR            | 520    | 408                      | NR            | 650    | 415                      | NR            | 780    | 7                        | NR            | 910    | 0                        | NR            |
| 395    | 2                        | NR            | 525    | 434                      | NR            | 655    | 362                      | NR            | 785    | 6                        | NR            | 915    | 0                        | NR            |
| 400    | 4                        | NR            | 530    | 461                      | NR            | 660    | 313                      | NR            | 790    | 5                        | NR            | 920    | 0                        | NR            |
| 405    | 8                        | NR            | 535    | 486                      | NR            | 665    | 271                      | NR            | 795    | 4                        | NR            | 925    | 0                        | NR            |
| 410    | 16                       | NR            | 540    | 514                      | NR            | 670    | 231                      | NR            | 800    | 4                        | NR            | 930    | 0                        | NR            |
| 415    | 33                       | NR            | 545    | 549                      | NR            | 675    | 198                      | NR            | 805    | 3                        | NR            | 935    | 0                        | NR            |
| 420    | 69                       | NR            | 550    | 591                      | NR            | 680    | 169                      | NR            | 810    | 3                        | NR            | 940    | 0                        | NR            |
| 425    | 131                      | NR            | 555    | 640                      | NR            | 685    | 144                      | NR            | 815    | 2                        | NR            | 945    | 0                        | NR            |
| 430    | 227                      | NR            | 560    | 695                      | NR            | 690    | 123                      | NR            | 820    | 2                        | NR            | 950    | 0                        | NR            |
| 435    | 369                      | NR            | 565    | 757                      | NR            | 695    | 104                      | NR            | 825    | 2                        | NR            | 955    | 0                        | NR            |
| 440    | 517                      | NR            | 570    | 822                      | NR            | 700    | 88                       | NR            | 830    | 2                        | NR            | 960    | 0                        | NR            |
| 445    | 498                      | NR            | 575    | 882                      | NR            | 705    | 75                       | NR            | 835    | 1                        | NR            | 965    | 0                        | NR            |
| 450    | 315                      | NR            | 580    | 935                      | NR            | 710    | 63                       | NR            | 840    | 1                        | NR            | 970    | 0                        | NR            |
| 455    | 204                      | NR            | 585    | 972                      | NR            | 715    | 54                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 145                      | NR            | 590    | 996                      | NR            | 720    | 46                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 100                      | NR            | 595    | 1000                     | NR            | 725    | 39                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 78                       | NR            | 600    | 989                      | NR            | 730    | 33                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 76                       | NR            | 605    | 960                      | NR            | 735    | 28                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 83                       | NR            | 610    | 918                      | NR            | 740    | 24                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 105                      | NR            | 615    | 864                      | NR            | 745    | 20                       | NR            | 875    | 1                        | NR            |        |                          |               |

**Summary**

$R_f = 73.8$   
 $R_g = 94.4$   
 CIE  $R_a = 70.8$   
 $R_g = -43.2$



**Color Vector Graphics**



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 63 | CES51 = 86 | CES76 = 61 |
| CES02 = 62 | CES27 = 83 | CES52 = 86 | CES77 = 81 |
| CES03 = 31 | CES28 = 86 | CES53 = 75 | CES78 = 64 |
| CES04 = 71 | CES29 = 58 | CES54 = 81 | CES79 = 86 |
| CES05 = 49 | CES30 = 61 | CES55 = 80 | CES80 = 86 |
| CES06 = 51 | CES31 = 63 | CES56 = 71 | CES81 = 70 |
| CES07 = 41 | CES32 = 61 | CES57 = 69 | CES82 = 94 |
| CES08 = 40 | CES33 = 65 | CES58 = 72 | CES83 = 88 |
| CES09 = 29 | CES34 = 77 | CES59 = 85 | CES84 = 90 |
| CES10 = 76 | CES35 = 88 | CES60 = 93 | CES85 = 80 |
| CES11 = 59 | CES36 = 89 | CES61 = 86 | CES86 = 60 |
| CES12 = 65 | CES37 = 85 | CES62 = 81 | CES87 = 78 |
| CES13 = 43 | CES38 = 69 | CES63 = 73 | CES88 = 75 |
| CES14 = 74 | CES39 = 93 | CES64 = 72 | CES89 = 66 |
| CES15 = 71 | CES40 = 89 | CES65 = 67 | CES90 = 72 |
| CES16 = 47 | CES41 = 83 | CES66 = 70 | CES91 = 95 |
| CES17 = 50 | CES42 = 87 | CES67 = 68 | CES92 = 59 |
| CES18 = 56 | CES43 = 77 | CES68 = 73 | CES93 = 76 |
| CES19 = 73 | CES44 = 99 | CES69 = 83 | CES94 = 48 |
| CES20 = 66 | CES45 = 83 | CES70 = 66 | CES95 = 70 |
| CES21 = 87 | CES46 = 77 | CES71 = 66 | CES96 = 76 |
| CES22 = 79 | CES47 = 74 | CES72 = 88 | CES97 = 82 |
| CES23 = 92 | CES48 = 62 | CES73 = 59 | CES98 = 73 |
| CES24 = 91 | CES49 = 77 | CES74 = 93 | CES99 = 60 |
| CES25 = 73 | CES50 = 85 | CES75 = 67 |            |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)