

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: P386806

Luminaire Tested: **GWC-SA2C-730-U-SL3-HSS**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P386806  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-23)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: McGRAW-EDISON  
Catalog Number: GWC-SA2C-730-U-SL3-HSS  
Description: GALLEON WALL LUMINAIRE  
(2) 70 CRI, 3000K, 1050mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III  
SPILL LIGHT ELIMINATOR OPTICS WITH HOUSE SIDE SHIELD  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 11485 lumens  
Efficiency: N/A  
Efficacy: 101.6 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 0.5' x H: 0')  
IES Classification: Type III - Medium  
BUG Rating: B1 - U0 - G2

Input Watts (W): 113  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT

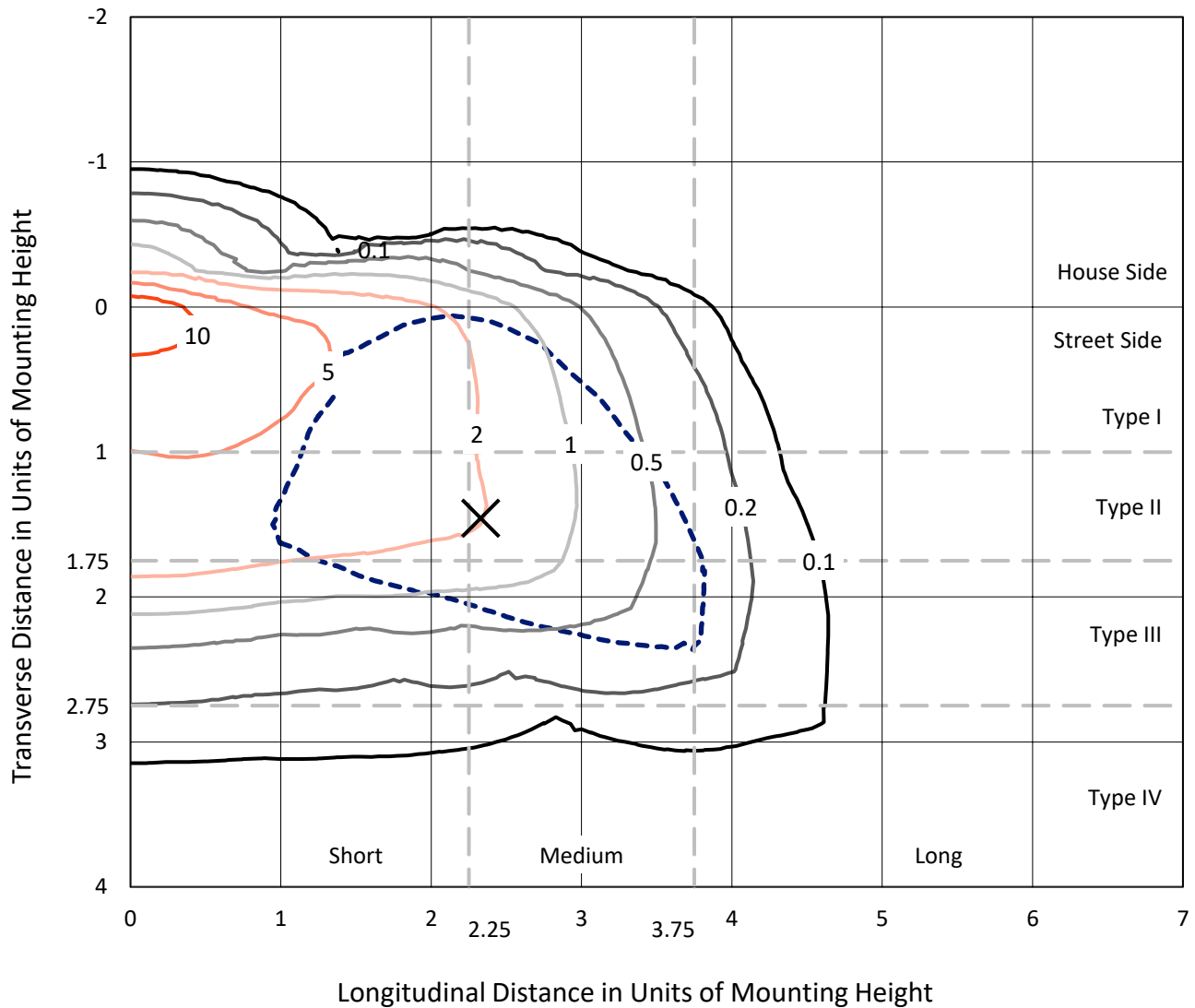


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## Iso-Footcandle Lines of Horizontal Illumination

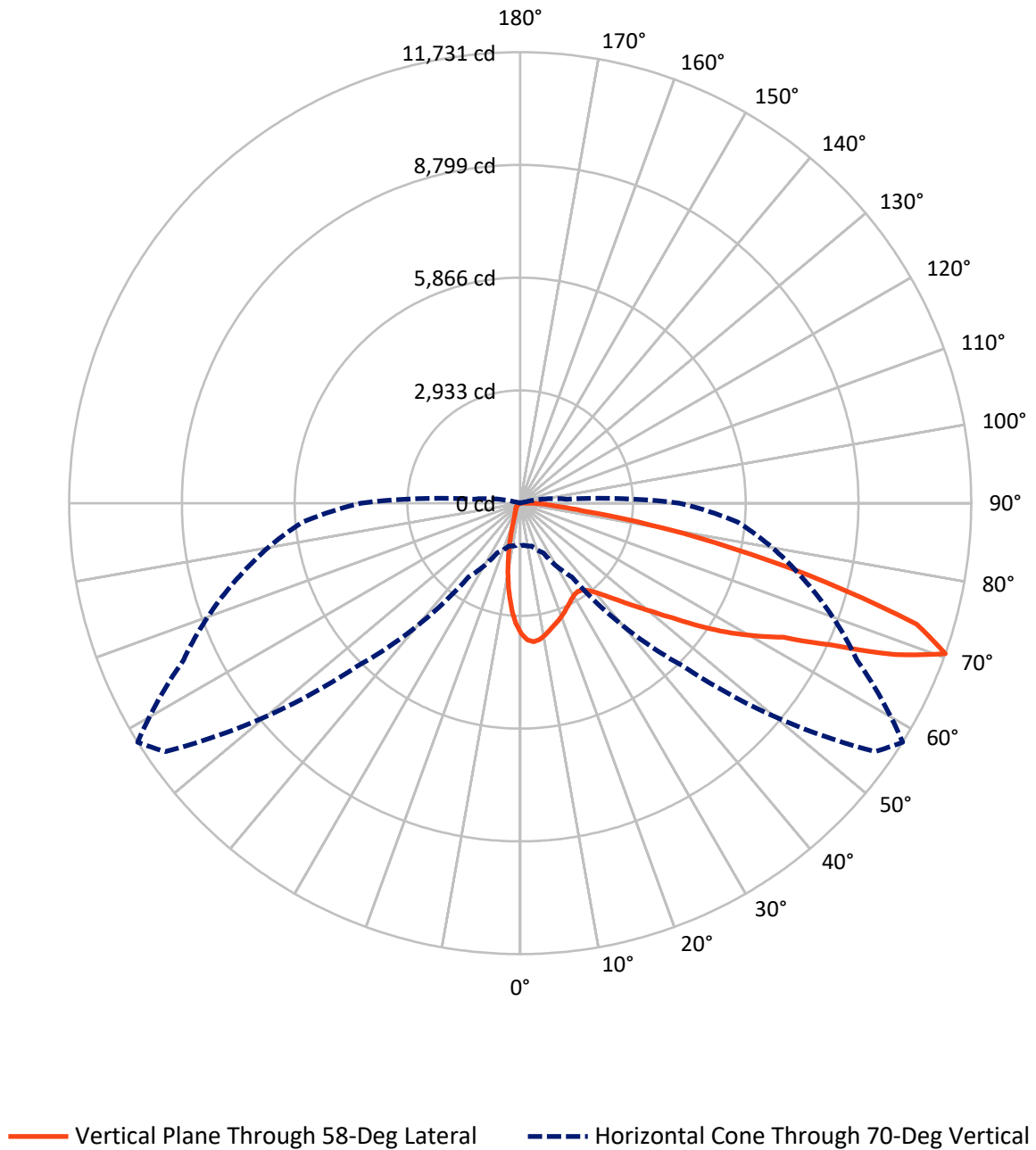
✕ Max cd  
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 15.3 fc  
 Type III - Medium - N/A

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## Luminous Intensity Polar Plot



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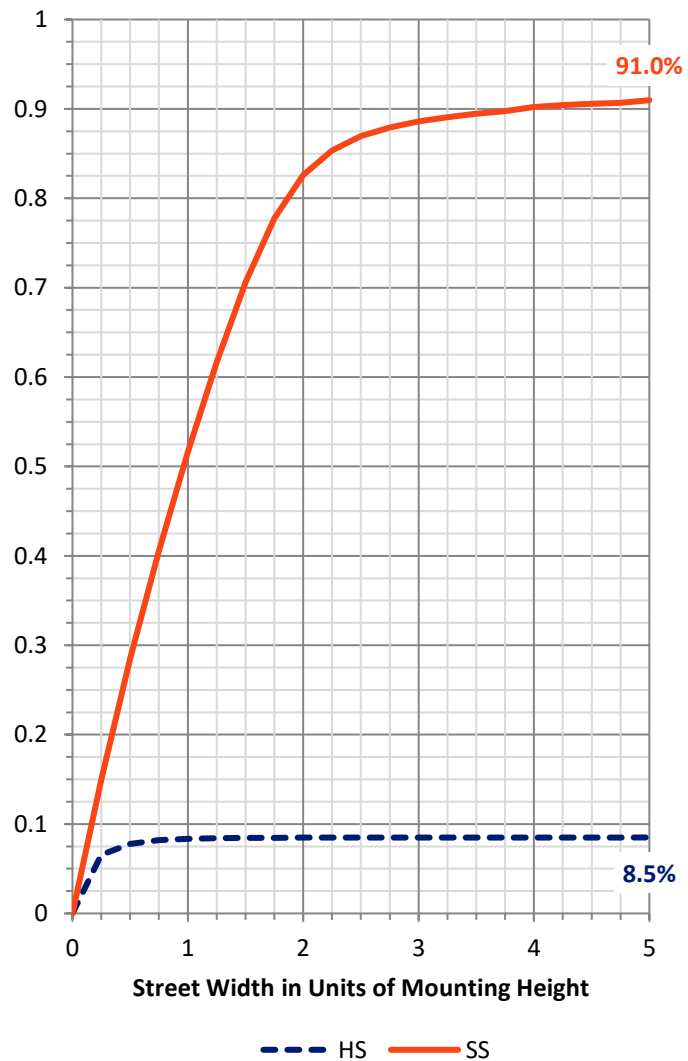
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 982.9    | 0.0    | 982.9   |
|                    | % Fixture | 8.6      | 0.0    | 8.6     |
| <b>Street Side</b> | Lumens    | 10502.1  | 0.0    | 10502.1 |
|                    | % Fixture | 91.4     | 0.0    | 91.4    |
| <b>Total</b>       | Lumens    | 11485.0  | 0.0    | 11485.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 277.4   | 2.4       |
| 10°-20°   | 582.3   | 5.1       |
| 20°-30°   | 765.5   | 6.7       |
| 30°-40°   | 1013.8  | 8.8       |
| 40°-50°   | 1515.3  | 13.2      |
| 50°-60°   | 2427.4  | 21.1      |
| 60°-70°   | 3059.8  | 26.6      |
| 70°-80°   | 1650.4  | 14.4      |
| 80°-90°   | 193.2   | 1.7       |
| 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°    | 11485.0 | 100.0     |
| 0°-180°   | 11485.0 | 100.0     |

**Coefficient of Utilization**



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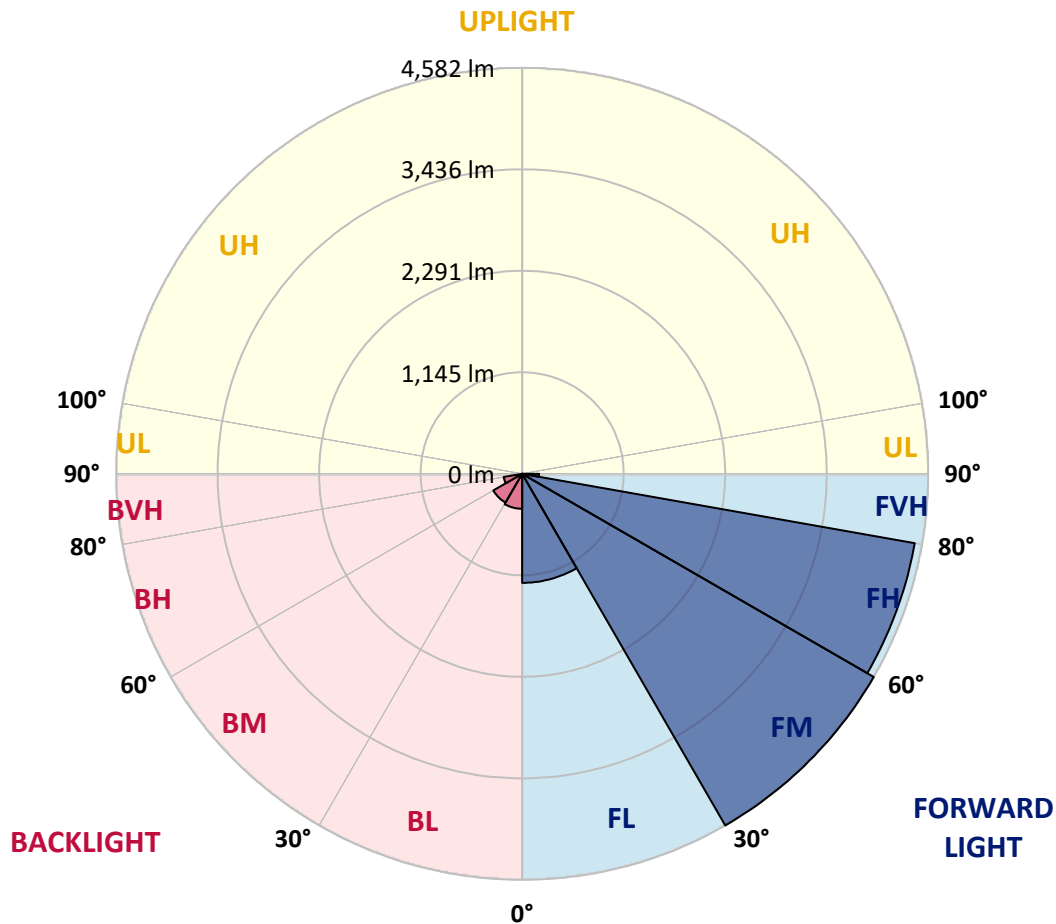
CATALOG NUMBER: GWC-SA2C-730-U-SL3-HSS

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 1230.3 | 10.7      |                         |      |         |
| FM   | (30°-60°)   | 4581.5 | 39.9      |                         |      |         |
| FH   | (60°-80°)   | 4498.8 | 39.2      |                         |      | G2/5000 |
| FVH  | (80°-90°)   | 191.5  | 1.7       |                         |      | G2/225  |
| BL   | (0°-30°)    | 394.9  | 3.4       | B1/500                  |      |         |
| BM   | (30°-60°)   | 374.9  | 3.3       | B1/1000                 |      |         |
| BH   | (60°-80°)   | 211.4  | 1.8       | B1/500                  |      | G1/500  |
| BVH  | (80°-90°)   | 1.7    | 0.0       |                         |      | G0/10   |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B1-U0-G2**

Type III Medium



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°     | 58°     | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|---------|---------|--------|--------|--------|
| 0°    | 3392.6 | 3392.6 | 3392.6 | 3392.6 | 3392.6 | 3392.6 | 3392.6  | 3392.6  | 3392.6 | 3392.6 | 3392.6 |
| 2.5°  | 3673.9 | 3664.8 | 3661.5 | 3655.8 | 3633.8 | 3612.3 | 3569.8  | 3557.9  | 3531.1 | 3467.6 | 3400.3 |
| 5°    | 3676.8 | 3676.3 | 3686.3 | 3683.9 | 3676.3 | 3666.3 | 3635.7  | 3619.9  | 3574.6 | 3483.8 | 3360.6 |
| 7.5°  | 3499.6 | 3508.7 | 3531.1 | 3549.3 | 3570.3 | 3597.5 | 3601.3  | 3586.0  | 3548.8 | 3450.9 | 3287.6 |
| 10°   | 3261.8 | 3276.1 | 3307.6 | 3343.4 | 3398.3 | 3452.8 | 3501.5  | 3499.6  | 3486.7 | 3390.2 | 3199.7 |
| 12.5° | 3023.5 | 3040.2 | 3076.5 | 3129.5 | 3207.3 | 3296.1 | 3383.1  | 3395.0  | 3416.5 | 3335.8 | 3118.5 |
| 15°   | 2814.8 | 2829.1 | 2864.9 | 2929.9 | 3026.3 | 3145.7 | 3273.2  | 3295.2  | 3350.6 | 3293.3 | 3050.7 |
| 17.5° | 2637.6 | 2646.7 | 2672.9 | 2745.0 | 2856.8 | 3001.5 | 3167.2  | 3210.2  | 3292.8 | 3259.9 | 2991.9 |
| 20°   | 2513.9 | 2515.3 | 2532.5 | 2583.1 | 2694.9 | 2856.8 | 3057.4  | 3119.0  | 3231.7 | 3231.2 | 2931.3 |
| 22.5° | 2452.8 | 2448.0 | 2451.3 | 2480.5 | 2562.6 | 2718.8 | 2947.5  | 3020.6  | 3176.8 | 3206.8 | 2869.7 |
| 25°   | 2441.3 | 2437.5 | 2427.9 | 2431.8 | 2481.4 | 2597.9 | 2836.7  | 2921.3  | 3128.5 | 3192.0 | 2816.2 |
| 27.5° | 2477.1 | 2480.9 | 2464.7 | 2447.5 | 2451.3 | 2519.6 | 2738.4  | 2836.3  | 3089.4 | 3192.0 | 2778.5 |
| 30°   | 2549.2 | 2551.1 | 2539.2 | 2516.8 | 2486.7 | 2497.7 | 2670.1  | 2768.0  | 3069.8 | 3214.0 | 2754.6 |
| 32.5° | 2629.0 | 2639.5 | 2638.1 | 2619.9 | 2576.9 | 2532.5 | 2653.8  | 2743.1  | 3068.3 | 3262.7 | 2752.2 |
| 35°   | 2727.8 | 2739.8 | 2759.8 | 2756.0 | 2711.1 | 2638.1 | 2709.2  | 2779.4  | 3096.5 | 3342.9 | 2778.0 |
| 37.5° | 2832.9 | 2851.1 | 2894.0 | 2914.6 | 2885.4 | 2802.8 | 2833.4  | 2883.5  | 3172.0 | 3472.8 | 2843.4 |
| 40°   | 2934.6 | 2955.2 | 3033.5 | 3114.2 | 3092.2 | 3007.2 | 3021.5  | 3061.7  | 3306.2 | 3659.6 | 2967.6 |
| 42.5° | 3034.4 | 3065.0 | 3180.1 | 3312.9 | 3339.1 | 3271.3 | 3279.0  | 3311.0  | 3505.3 | 3916.5 | 3170.5 |
| 45°   | 3153.8 | 3188.2 | 3358.7 | 3522.5 | 3592.7 | 3563.1 | 3595.6  | 3616.6  | 3765.6 | 4256.1 | 3444.2 |
| 47.5° | 3329.1 | 3368.7 | 3577.9 | 3764.6 | 3887.8 | 3907.0 | 3972.4  | 3986.2  | 4094.6 | 4651.5 | 3800.9 |
| 50°   | 3671.0 | 3682.0 | 3871.1 | 4040.7 | 4218.3 | 4332.9 | 4407.4  | 4417.9  | 4492.9 | 5083.7 | 4246.5 |
| 52.5° | 4101.3 | 4108.5 | 4215.5 | 4329.1 | 4531.1 | 4765.1 | 4939.4  | 4954.2  | 4970.0 | 5504.9 | 4686.3 |
| 55°   | 4528.7 | 4527.8 | 4598.5 | 4665.3 | 4896.5 | 5236.5 | 5614.7  | 5623.8  | 5510.6 | 5904.6 | 5022.5 |
| 57.5° | 4795.7 | 4821.5 | 4928.9 | 5014.9 | 5337.7 | 5773.7 | 6298.6  | 6332.0  | 6078.4 | 6200.7 | 5354.9 |
| 60°   | 4710.7 | 4723.1 | 4961.4 | 5279.5 | 5887.4 | 6537.4 | 6990.6  | 6999.2  | 6505.4 | 6496.3 | 5775.2 |
| 62.5° | 4013.4 | 4020.1 | 4394.5 | 5050.2 | 6165.8 | 7527.8 | 7825.4  | 7685.4  | 6996.3 | 6906.5 | 6278.1 |
| 65°   | 2750.8 | 2794.2 | 3107.0 | 3917.5 | 5654.4 | 8149.2 | 9117.7  | 8886.0  | 7744.7 | 7497.8 | 6732.7 |
| 67.5° | 1619.9 | 1610.8 | 1765.6 | 2362.5 | 4152.9 | 7736.5 | 10752.4 | 10522.2 | 8765.2 | 7893.7 | 6599.5 |
| 70°   | 1106.5 | 1100.3 | 1159.5 | 1430.3 | 2344.4 | 6001.5 | 11266.7 | 11731.4 | 9666.4 | 7627.2 | 5679.7 |
| 72.5° | 789.9  | 793.2  | 880.6  | 1111.3 | 1471.9 | 3496.7 | 9688.8  | 10788.6 | 9384.1 | 6649.1 | 4317.2 |
| 75°   | 536.3  | 545.4  | 670.5  | 911.7  | 1290.4 | 1778.9 | 6875.5  | 8201.2  | 7641.5 | 4832.5 | 2481.4 |
| 77.5° | 288.4  | 298.5  | 446.0  | 734.5  | 1166.7 | 1235.9 | 4422.7  | 5644.3  | 4800.0 | 2172.4 | 719.2  |
| 80°   | 120.3  | 126.1  | 208.7  | 533.9  | 1008.1 | 1085.5 | 2602.2  | 3422.7  | 2045.4 | 428.4  | 160.5  |
| 82.5° | 52.1   | 54.9   | 86.9   | 318.5  | 753.6  | 916.4  | 1377.8  | 1646.6  | 619.9  | 94.1   | 80.7   |
| 85°   | 10.0   | 10.5   | 35.8   | 168.6  | 480.9  | 517.2  | 893.0   | 875.4   | 278.4  | 40.6   | 58.7   |
| 87.5° | 0.0    | 0.0    | 8.6    | 53.0   | 141.4  | 281.8  | 544.9   | 538.2   | 94.6   | 19.6   | 22.0   |
| 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°    | 3392.6 | 3392.6 | 3392.6 | 3392.6 | 3392.6 | 3392.6 | 3392.6 | 3392.6 | 3392.6 | 3392.6 | 3392.6 |
| 2.5°  | 3365.9 | 3332.9 | 3263.7 | 3178.2 | 3112.8 | 3040.6 | 2983.3 | 2910.8 | 2879.2 | 2880.7 | 2863.5 |
| 5°    | 3290.4 | 3222.6 | 3069.3 | 2875.9 | 2726.9 | 2573.1 | 2440.8 | 2309.0 | 2231.2 | 2205.9 | 2182.0 |
| 7.5°  | 3182.5 | 3075.0 | 2830.5 | 2532.5 | 2280.4 | 2033.9 | 1819.5 | 1630.9 | 1511.5 | 1453.2 | 1431.7 |
| 10°   | 3060.7 | 2909.8 | 2555.9 | 2163.4 | 1803.3 | 1469.9 | 1192.0 | 950.4  | 853.9  | 788.5  | 771.7  |
| 12.5° | 2953.7 | 2749.3 | 2287.5 | 1784.7 | 1357.2 | 955.1  | 690.1  | 539.6  | 474.2  | 448.4  | 444.1  |
| 15°   | 2853.0 | 2599.4 | 2029.2 | 1441.8 | 939.8  | 587.9  | 438.9  | 387.8  | 372.5  | 368.2  | 368.2  |
| 17.5° | 2757.9 | 2456.6 | 1776.5 | 1104.1 | 621.8  | 412.1  | 363.4  | 352.0  | 347.2  | 346.7  | 347.2  |
| 20°   | 2658.6 | 2313.8 | 1528.2 | 809.0  | 434.1  | 349.1  | 335.7  | 329.5  | 328.1  | 328.1  | 328.1  |
| 22.5° | 2563.6 | 2171.0 | 1286.6 | 577.9  | 348.1  | 318.5  | 311.8  | 307.6  | 306.1  | 305.6  | 304.7  |
| 25°   | 2472.3 | 2035.4 | 1050.6 | 408.3  | 305.6  | 291.8  | 286.1  | 280.3  | 276.0  | 273.6  | 272.2  |
| 27.5° | 2397.4 | 1914.6 | 831.0  | 327.6  | 276.0  | 264.1  | 256.9  | 248.3  | 237.8  | 233.1  | 231.1  |
| 30°   | 2337.7 | 1804.2 | 640.4  | 276.5  | 248.3  | 236.4  | 225.4  | 210.6  | 195.3  | 187.2  | 186.7  |
| 32.5° | 2290.9 | 1695.8 | 486.2  | 244.5  | 223.5  | 208.7  | 192.9  | 174.3  | 156.6  | 147.6  | 147.1  |
| 35°   | 2268.0 | 1600.3 | 371.5  | 221.1  | 201.5  | 182.9  | 163.3  | 142.8  | 125.6  | 117.0  | 116.0  |
| 37.5° | 2283.2 | 1519.6 | 289.9  | 201.5  | 182.9  | 161.4  | 138.5  | 117.0  | 101.7  | 94.1   | 93.6   |
| 40°   | 2339.1 | 1468.0 | 235.4  | 184.8  | 167.1  | 140.9  | 116.0  | 96.0   | 83.1   | 76.9   | 76.4   |
| 42.5° | 2458.0 | 1448.9 | 201.1  | 171.0  | 151.9  | 121.8  | 96.5   | 79.3   | 67.3   | 63.0   | 62.1   |
| 45°   | 2656.7 | 1477.1 | 177.7  | 157.6  | 136.1  | 103.6  | 79.8   | 64.9   | 54.4   | 51.1   | 50.6   |
| 47.5° | 2921.3 | 1551.1 | 160.9  | 144.7  | 121.8  | 87.4   | 66.4   | 52.5   | 44.4   | 41.1   | 40.6   |
| 50°   | 3262.2 | 1668.6 | 147.1  | 131.8  | 108.4  | 74.0   | 54.9   | 41.5   | 34.4   | 32.0   | 32.0   |
| 52.5° | 3633.3 | 1808.5 | 134.7  | 119.9  | 95.0   | 61.6   | 44.4   | 32.0   | 27.2   | 24.4   | 24.4   |
| 55°   | 3939.9 | 1930.8 | 121.3  | 110.8  | 78.8   | 51.1   | 33.9   | 24.4   | 20.1   | 18.6   | 18.6   |
| 57.5° | 4246.0 | 2061.2 | 106.0  | 95.0   | 63.0   | 41.5   | 25.8   | 18.1   | 14.8   | 13.8   | 13.8   |
| 60°   | 4642.9 | 2220.7 | 91.2   | 77.4   | 49.7   | 31.5   | 19.1   | 12.9   | 11.0   | 10.5   | 10.5   |
| 62.5° | 5079.4 | 2314.3 | 77.8   | 62.1   | 38.7   | 23.4   | 13.8   | 8.6    | 8.1    | 8.1    | 7.6    |
| 65°   | 5346.3 | 2182.0 | 65.4   | 49.7   | 30.1   | 17.7   | 9.1    | 6.2    | 7.2    | 6.7    | 5.7    |
| 67.5° | 5005.8 | 1708.2 | 53.5   | 38.7   | 23.4   | 13.4   | 5.7    | 4.3    | 7.6    | 6.2    | 4.8    |
| 70°   | 4144.8 | 1195.8 | 41.5   | 27.2   | 18.6   | 11.5   | 3.8    | 2.9    | 8.1    | 6.2    | 3.8    |
| 72.5° | 3101.8 | 800.4  | 33.0   | 18.1   | 13.8   | 10.0   | 3.3    | 1.4    | 7.2    | 5.3    | 3.3    |
| 75°   | 1694.9 | 322.4  | 26.3   | 11.5   | 8.6    | 7.2    | 2.4    | 1.0    | 4.8    | 3.8    | 2.4    |
| 77.5° | 446.0  | 85.0   | 19.1   | 7.6    | 4.8    | 2.9    | 1.4    | 0.5    | 2.4    | 1.9    | 1.0    |
| 80°   | 113.7  | 33.0   | 12.4   | 5.3    | 3.3    | 1.4    | 0.0    | 0.0    | 0.5    | 0.0    | 0.0    |
| 82.5° | 60.7   | 13.8   | 7.6    | 3.8    | 1.9    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 85°   | 45.8   | 9.1    | 4.3    | 2.4    | 0.5    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 87.5° | 17.7   | 2.9    | 1.4    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

INVUE

Report Number: SP1-2012-088-7

Luminaire Tested: WIS-SA-730-2A-U-SL3-HSS

Test Date: 01/20/2021



REPORT NUMBER: SP1-2012-088-7

| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | IN0058                | 7/29/2020        | 1/29/2021            |
| 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: SP1-2012-088-7

### Photopic Flux vs. Wavelength



#####

| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) |
|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|
| 360       | 1195             | 0.0              | 490       | 13880            | 2.0              | 620       | 66879            | 17.4             | 750       | 2571             | 0.0              | 880       | 1235             | 0.0              |
| 365       | 985              | 0.0              | 495       | 17408            | 3.2              | 625       | 62111            | 13.7             | 755       | 2394             | 0.0              | 885       | 1368             | 0.0              |
| 370       | 1066             | 0.0              | 500       | 21285            | 4.7              | 630       | 56551            | 10.2             | 760       | 2199             | 0.0              | 890       | 1027             | 0.0              |
| 375       | 1227             | 0.0              | 505       | 24779            | 6.9              | 635       | 50866            | 7.6              | 765       | 2031             | 0.0              | 895       | 822              | 0.0              |
| 380       | 1176             | 0.0              | 510       | 27951            | 9.6              | 640       | 45859            | 5.5              | 770       | 1735             | 0.0              | 900       | 1068             | 0.0              |
| 385       | 1115             | 0.0              | 515       | 30815            | 12.8             | 645       | 40924            | 3.9              | 775       | 1538             | 0.0              | 905       | 823              | 0.0              |
| 390       | 1039             | 0.0              | 520       | 33040            | 16.0             | 650       | 36434            | 2.7              | 780       | 1455             | 0.0              | 910       | 531              | 0.0              |
| 395       | 908              | 0.0              | 525       | 35159            | 18.9             | 655       | 32132            | 1.8              | 785       | 1506             | 0.0              | 915       | 1184             | 0.0              |
| 400       | 903              | 0.0              | 530       | 37292            | 22.0             | 660       | 27953            | 1.2              | 790       | 1154             | 0.0              | 920       | 1320             | 0.0              |
| 405       | 911              | 0.0              | 535       | 39123            | 24.3             | 665       | 24284            | 0.8              | 795       | 1232             | 0.0              | 925       | 1757             | 0.0              |
| 410       | 1264             | 0.0              | 540       | 41391            | 27.0             | 670       | 20822            | 0.5              | 800       | 1247             | 0.0              | 930       | 1279             | 0.0              |
| 415       | 2142             | 0.0              | 545       | 44515            | 29.6             | 675       | 17848            | 0.3              | 805       | 1043             | 0.0              | 935       | 1399             | 0.0              |
| 420       | 4052             | 0.0              | 550       | 47864            | 32.5             | 680       | 15278            | 0.2              | 810       | 1235             | 0.0              | 940       | 1325             | 0.0              |
| 425       | 7647             | 0.0              | 555       | 52101            | 35.6             | 685       | 13213            | 0.1              | 815       | 1173             | 0.0              | 945       | 612              | 0.0              |
| 430       | 13366            | 0.1              | 560       | 56892            | 38.7             | 690       | 11304            | 0.1              | 820       | 948              | 0.0              | 950       | 1094             | 0.0              |
| 435       | 22367            | 0.3              | 565       | 62242            | 41.4             | 695       | 9794             | 0.0              | 825       | 846              | 0.0              | 955       | 1493             | 0.0              |
| 440       | 34007            | 0.5              | 570       | 67731            | 44.0             | 700       | 8390             | 0.0              | 830       | 987              | 0.0              | 960       | 385              | 0.0              |
| 445       | 41889            | 0.9              | 575       | 72883            | 45.3             | 705       | 7303             | 0.0              | 835       | 1395             | 0.0              | 965       | 585              | 0.0              |
| 450       | 36090            | 0.9              | 580       | 77104            | 45.8             | 710       | 6501             | 0.0              | 840       | 1079             | 0.0              | 970       | 1360             | 0.0              |
| 455       | 23459            | 0.8              | 585       | 80305            | 44.6             | 715       | 5811             | 0.0              | 845       | 1430             | 0.0              | 975       | 805              | 0.0              |
| 460       | 17429            | 0.7              | 590       | 82039            | 42.4             | 720       | 5196             | 0.0              | 850       | 984              | 0.0              | 980       | 813              | 0.0              |
| 465       | 13265            | 0.7              | 595       | 82883            | 39.3             | 725       | 4576             | 0.0              | 855       | 1315             | 0.0              | 985       | 214              | 0.0              |
| 470       | 9887             | 0.6              | 600       | 82307            | 35.5             | 730       | 4031             | 0.0              | 860       | 1245             | 0.0              | 990       | 1247             | 0.0              |
| 475       | 8912             | 0.7              | 605       | 79818            | 30.9             | 735       | 3393             | 0.0              | 865       | 1445             | 0.0              | 995       | 597              | 0.0              |
| 480       | 9543             | 0.9              | 610       | 76405            | 26.2             | 740       | 3117             | 0.0              | 870       | 998              | 0.0              | 1000      | 1691             | 0.0              |
| 485       | 11169            | 1.3              | 615       | 71967            | 21.7             | 745       | 2946             | 0.0              | 875       | 1326             | 0.0              |           |                  |                  |

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### Scotopic Flux vs. Wavelength


**Scotopic Lumens: 1728.4**
**S/P: 0.45**

| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) |
|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|
| 360       | 1195             | 0.0              | 490       | 13880            | 21.4             | 620       | 66879            | 0.8              | 750       | 2571             | 0.0              | 880       | 1235             | 0.0              |
| 365       | 985              | 0.0              | 495       | 17408            | 28.1             | 625       | 62111            | 0.5              | 755       | 2394             | 0.0              | 885       | 1368             | 0.0              |
| 370       | 1066             | 0.0              | 500       | 21285            | 35.6             | 630       | 56551            | 0.3              | 760       | 2199             | 0.0              | 890       | 1027             | 0.0              |
| 375       | 1227             | 0.0              | 505       | 24779            | 42.1             | 635       | 50866            | 0.2              | 765       | 2031             | 0.0              | 895       | 822              | 0.0              |
| 380       | 1176             | 0.0              | 510       | 27951            | 47.4             | 640       | 45859            | 0.1              | 770       | 1735             | 0.0              | 900       | 1068             | 0.0              |
| 385       | 1115             | 0.0              | 515       | 30815            | 51.1             | 645       | 40924            | 0.1              | 775       | 1538             | 0.0              | 905       | 823              | 0.0              |
| 390       | 1039             | 0.0              | 520       | 33040            | 52.5             | 650       | 36434            | 0.0              | 780       | 1455             | 0.0              | 910       | 531              | 0.0              |
| 395       | 908              | 0.0              | 525       | 35159            | 52.6             | 655       | 32132            | 0.0              | 785       | 1506             | 0.0              | 915       | 1184             | 0.0              |
| 400       | 903              | 0.0              | 530       | 37292            | 51.4             | 660       | 27953            | 0.0              | 790       | 1154             | 0.0              | 920       | 1320             | 0.0              |
| 405       | 911              | 0.0              | 535       | 39123            | 48.8             | 665       | 24284            | 0.0              | 795       | 1232             | 0.0              | 925       | 1757             | 0.0              |
| 410       | 1264             | 0.1              | 540       | 41391            | 45.7             | 670       | 20822            | 0.0              | 800       | 1247             | 0.0              | 930       | 1279             | 0.0              |
| 415       | 2142             | 0.2              | 545       | 44515            | 42.7             | 675       | 17848            | 0.0              | 805       | 1043             | 0.0              | 935       | 1399             | 0.0              |
| 420       | 4052             | 0.7              | 550       | 47864            | 39.1             | 680       | 15278            | 0.0              | 810       | 1235             | 0.0              | 940       | 1325             | 0.0              |
| 425       | 7647             | 1.9              | 555       | 52101            | 35.6             | 685       | 13213            | 0.0              | 815       | 1173             | 0.0              | 945       | 612              | 0.0              |
| 430       | 13366            | 4.5              | 560       | 56892            | 31.8             | 690       | 11304            | 0.0              | 820       | 948              | 0.0              | 950       | 1094             | 0.0              |
| 435       | 22367            | 10.0             | 565       | 62242            | 27.9             | 695       | 9794             | 0.0              | 825       | 846              | 0.0              | 955       | 1493             | 0.0              |
| 440       | 34007            | 19.0             | 570       | 67731            | 23.9             | 700       | 8390             | 0.0              | 830       | 987              | 0.0              | 960       | 385              | 0.0              |
| 445       | 41889            | 28.0             | 575       | 72883            | 19.8             | 705       | 7303             | 0.0              | 835       | 1395             | 0.0              | 965       | 585              | 0.0              |
| 450       | 36090            | 28.0             | 580       | 77104            | 15.9             | 710       | 6501             | 0.0              | 840       | 1079             | 0.0              | 970       | 1360             | 0.0              |
| 455       | 23459            | 20.5             | 585       | 80305            | 12.3             | 715       | 5811             | 0.0              | 845       | 1430             | 0.0              | 975       | 805              | 0.0              |
| 460       | 17429            | 16.8             | 590       | 82039            | 9.1              | 720       | 5196             | 0.0              | 850       | 984              | 0.0              | 980       | 813              | 0.0              |
| 465       | 13265            | 14.0             | 595       | 82883            | 6.6              | 725       | 4576             | 0.0              | 855       | 1315             | 0.0              | 985       | 214              | 0.0              |
| 470       | 9887             | 11.4             | 600       | 82307            | 4.6              | 730       | 4031             | 0.0              | 860       | 1245             | 0.0              | 990       | 1247             | 0.0              |
| 475       | 8912             | 11.1             | 605       | 79818            | 3.1              | 735       | 3393             | 0.0              | 865       | 1445             | 0.0              | 995       | 597              | 0.0              |
| 480       | 9543             | 12.9             | 610       | 76405            | 2.1              | 740       | 3117             | 0.0              | 870       | 998              | 0.0              | 1000      | 1691             | 0.0              |
| 485       | 11169            | 16.2             | 615       | 71967            | 1.3              | 745       | 2946             | 0.0              | 875       | 1326             | 0.0              |           |                  |                  |

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### Melanopic Flux vs. Wavelength


**Melanopic Lumens: 4752**
**S/P: 1.23**

| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) |
|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|
| 360       | 1195             | 0.0              | 490       | 13880            | 11.5             | 620       | 66879            | 0.1              | 750       | 2571             | 0.0              | 880       | 1235             | 0.0              |
| 365       | 985              | 0.0              | 495       | 17408            | 14.4             | 625       | 62111            | 0.0              | 755       | 2394             | 0.0              | 885       | 1368             | 0.0              |
| 370       | 1066             | 0.0              | 500       | 21285            | 17.1             | 630       | 56551            | 0.0              | 760       | 2199             | 0.0              | 890       | 1027             | 0.0              |
| 375       | 1227             | 0.0              | 505       | 24779            | 19.0             | 635       | 50866            | 0.0              | 765       | 2031             | 0.0              | 895       | 822              | 0.0              |
| 380       | 1176             | 0.0              | 510       | 27951            | 20.1             | 640       | 45859            | 0.0              | 770       | 1735             | 0.0              | 900       | 1068             | 0.0              |
| 385       | 1115             | 0.0              | 515       | 30815            | 20.1             | 645       | 40924            | 0.0              | 775       | 1538             | 0.0              | 905       | 823              | 0.0              |
| 390       | 1039             | 0.0              | 520       | 33040            | 19.2             | 650       | 36434            | 0.0              | 780       | 1455             | 0.0              | 910       | 531              | 0.0              |
| 395       | 908              | 0.0              | 525       | 35159            | 17.8             | 655       | 32132            | 0.0              | 785       | 1506             | 0.0              | 915       | 1184             | 0.0              |
| 400       | 903              | 0.0              | 530       | 37292            | 16.1             | 660       | 27953            | 0.0              | 790       | 1154             | 0.0              | 920       | 1320             | 0.0              |
| 405       | 911              | 0.0              | 535       | 39123            | 14.1             | 665       | 24284            | 0.0              | 795       | 1232             | 0.0              | 925       | 1757             | 0.0              |
| 410       | 1264             | 0.0              | 540       | 41391            | 12.1             | 670       | 20822            | 0.0              | 800       | 1247             | 0.0              | 930       | 1279             | 0.0              |
| 415       | 2142             | 0.1              | 545       | 44515            | 10.3             | 675       | 17848            | 0.0              | 805       | 1043             | 0.0              | 935       | 1399             | 0.0              |
| 420       | 4052             | 0.5              | 550       | 47864            | 8.6              | 680       | 15278            | 0.0              | 810       | 1235             | 0.0              | 940       | 1325             | 0.0              |
| 425       | 7647             | 1.2              | 555       | 52101            | 7.0              | 685       | 13213            | 0.0              | 815       | 1173             | 0.0              | 945       | 612              | 0.0              |
| 430       | 13366            | 2.8              | 560       | 56892            | 5.6              | 690       | 11304            | 0.0              | 820       | 948              | 0.0              | 950       | 1094             | 0.0              |
| 435       | 22367            | 6.0              | 565       | 62242            | 4.4              | 695       | 9794             | 0.0              | 825       | 846              | 0.0              | 955       | 1493             | 0.0              |
| 440       | 34007            | 11.4             | 570       | 67731            | 3.3              | 700       | 8390             | 0.0              | 830       | 987              | 0.0              | 960       | 385              | 0.0              |
| 445       | 41889            | 16.5             | 575       | 72883            | 2.4              | 705       | 7303             | 0.0              | 835       | 1395             | 0.0              | 965       | 585              | 0.0              |
| 450       | 36090            | 16.6             | 580       | 77104            | 1.7              | 710       | 6501             | 0.0              | 840       | 1079             | 0.0              | 970       | 1360             | 0.0              |
| 455       | 23459            | 12.3             | 585       | 80305            | 1.2              | 715       | 5811             | 0.0              | 845       | 1430             | 0.0              | 975       | 805              | 0.0              |
| 460       | 17429            | 10.3             | 590       | 82039            | 0.8              | 720       | 5196             | 0.0              | 850       | 984              | 0.0              | 980       | 813              | 0.0              |
| 465       | 13265            | 8.7              | 595       | 82883            | 0.5              | 725       | 4576             | 0.0              | 855       | 1315             | 0.0              | 985       | 214              | 0.0              |
| 470       | 9887             | 7.1              | 600       | 82307            | 0.3              | 730       | 4031             | 0.0              | 860       | 1245             | 0.0              | 990       | 1247             | 0.0              |
| 475       | 8912             | 6.8              | 605       | 79818            | 0.2              | 735       | 3393             | 0.0              | 865       | 1445             | 0.0              | 995       | 597              | 0.0              |
| 480       | 9543             | 7.7              | 610       | 76405            | 0.1              | 740       | 3117             | 0.0              | 870       | 998              | 0.0              | 1000      | 1691             | 0.0              |
| 485       | 11169            | 9.2              | 615       | 71967            | 0.1              | 745       | 2946             | 0.0              | 875       | 1326             | 0.0              |           |                  |                  |

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TM-30-18

### Summary

$R_f = 76.2$   
 $R_g = 94.2$   
 CIE  $R_a = 72.4$   
 $R_g = -36.8$



### Color Vector Graphics



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 68 | CES51 = 88 | CES76 = 65 |
| CES02 = 63 | CES27 = 88 | CES52 = 87 | CES77 = 81 |
| CES03 = 31 | CES28 = 88 | CES53 = 79 | CES78 = 67 |
| CES04 = 71 | CES29 = 66 | CES54 = 85 | CES79 = 87 |
| CES05 = 49 | CES30 = 73 | CES55 = 84 | CES80 = 87 |
| CES06 = 51 | CES31 = 70 | CES56 = 76 | CES81 = 70 |
| CES07 = 41 | CES32 = 66 | CES57 = 75 | CES82 = 94 |
| CES08 = 40 | CES33 = 73 | CES58 = 77 | CES83 = 90 |
| CES09 = 29 | CES34 = 80 | CES59 = 86 | CES84 = 89 |
| CES10 = 76 | CES35 = 90 | CES60 = 93 | CES85 = 77 |
| CES11 = 59 | CES36 = 97 | CES61 = 85 | CES86 = 61 |
| CES12 = 65 | CES37 = 88 | CES62 = 90 | CES87 = 78 |
| CES13 = 43 | CES38 = 81 | CES63 = 77 | CES88 = 78 |
| CES14 = 74 | CES39 = 95 | CES64 = 73 | CES89 = 67 |
| CES15 = 71 | CES40 = 91 | CES65 = 69 | CES90 = 76 |
| CES16 = 47 | CES41 = 88 | CES66 = 71 | CES91 = 89 |
| CES17 = 50 | CES42 = 89 | CES67 = 69 | CES92 = 58 |
| CES18 = 56 | CES43 = 80 | CES68 = 73 | CES93 = 75 |
| CES19 = 73 | CES44 = 99 | CES69 = 82 | CES94 = 49 |
| CES20 = 66 | CES45 = 85 | CES70 = 67 | CES95 = 69 |
| CES21 = 87 | CES46 = 81 | CES71 = 68 | CES96 = 77 |
| CES22 = 79 | CES47 = 81 | CES72 = 88 | CES97 = 83 |
| CES23 = 92 | CES48 = 69 | CES73 = 60 | CES98 = 75 |
| CES24 = 91 | CES49 = 80 | CES74 = 95 | CES99 = 63 |
| CES25 = 73 | CES50 = 87 | CES75 = 69 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**


(END OF REPORT)