

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: METALUX

Report Number: P732031

Luminaire Tested: **22CZ2-34HE-SQR-B2750-W2D-2700K**

Issue Date: 1/5/2024



**Test Information**

Test Method: LM-79-08  
Report Number: P732031  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P387672)  
Test Lab: INNOVATIONS CENTER(G3)  
Issue Date: 1/5/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: 22CZ2-34HE-SQR-B2750-W2D-2700K  
Description: 2X2 3400 LUMEN CRUZE TROFFER WITH BIO UP LEDS AT 2700K CCT AND SQR LENS

Light Source: -  
Ballast/Driver: -

**Summary**

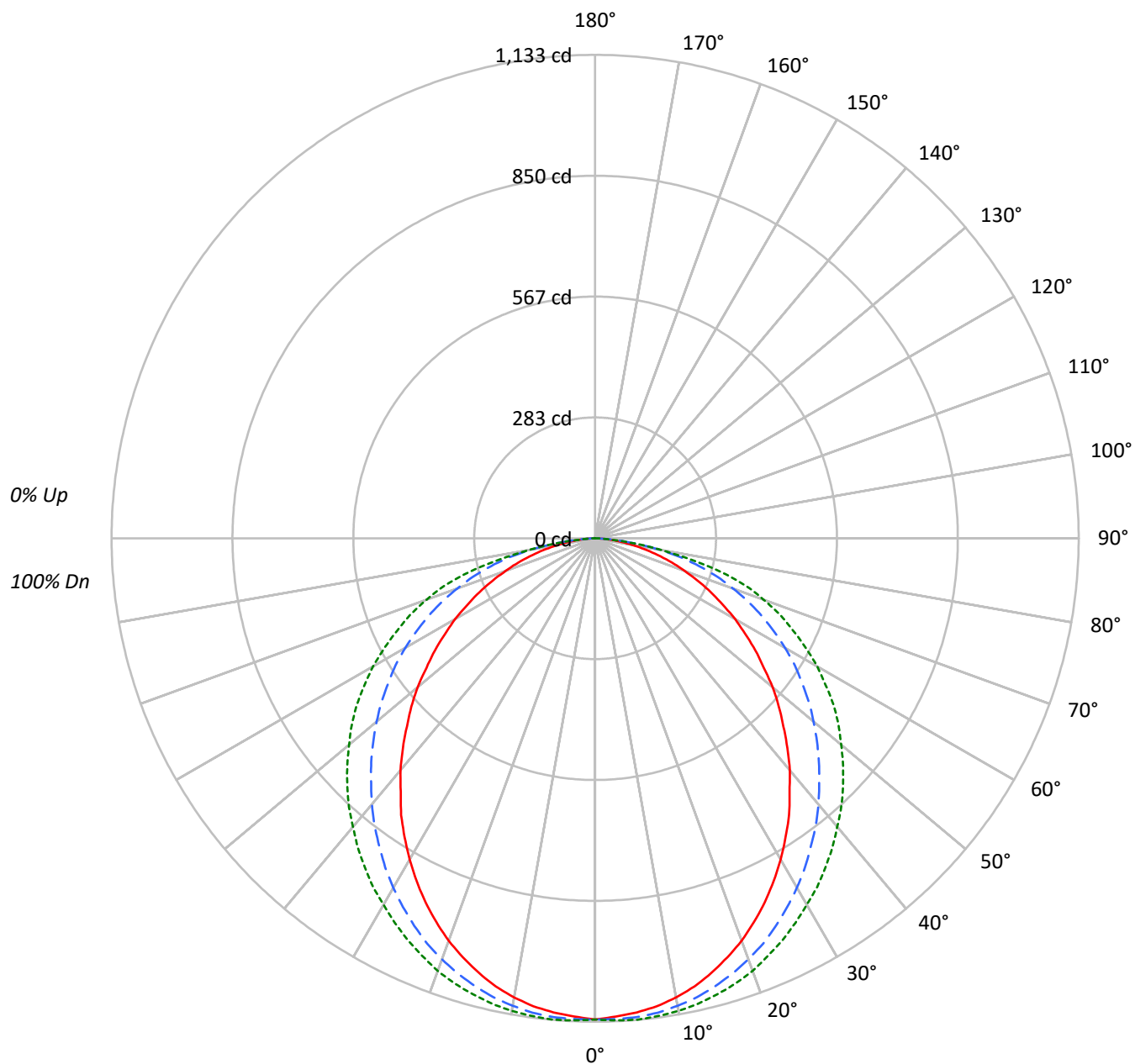
Lumens per Lamp: N/A  
Luminaire Lumens: 3229.0 lumens  
Efficiency: N/A  
Efficacy: 107.6 lumens/watt  
Spacing Criteria (0/90/45): 1.16 / 1.31 / 1.37  
Luminous Opening: Rectangular (W 1.92' x L: 1.98' x H: 0')  
CIE Type: Direct

Input Watts (W): 30  
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: 25 FT

TEST NUMBER: P732031

CATALOG NUMBER: 22CZ2-34HE-SQR-B2750-W2D-2700K

### Luminous Intensity Polar Plot





TEST NUMBER: P732031

CATALOG NUMBER: 22CZ2-34HE-SQR-B2750-W2D-2700K

**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|
| RF  | 20  |     |     |     | 20  |     |     |     |     | 20  |     |     |     |     | 20  |     |     |     |    | 20 |
| RC  | 80  |     |     |     | 70  |     |     |     |     | 50  |     |     |     |     | 30  |     |     |     |    | 10 |
| RW  | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30 | 10 |
| RCR |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |    |    |
| 1   | 109 | 104 | 99  | 95  | 106 | 101 | 97  | 94  | 97  | 94  | 91  | 93  | 91  | 88  | 90  | 87  | 85  | 83  |    |    |
| 2   | 99  | 90  | 83  | 77  | 96  | 88  | 82  | 76  | 85  | 79  | 75  | 81  | 77  | 73  | 78  | 75  | 71  | 69  |    |    |
| 3   | 90  | 79  | 71  | 64  | 87  | 77  | 70  | 63  | 74  | 68  | 62  | 72  | 66  | 61  | 69  | 64  | 60  | 58  |    |    |
| 4   | 82  | 70  | 61  | 54  | 80  | 68  | 60  | 54  | 66  | 59  | 53  | 64  | 57  | 52  | 61  | 56  | 51  | 49  |    |    |
| 5   | 75  | 62  | 53  | 46  | 73  | 61  | 53  | 46  | 59  | 51  | 46  | 57  | 50  | 45  | 55  | 49  | 45  | 43  |    |    |
| 6   | 70  | 56  | 47  | 41  | 68  | 55  | 47  | 40  | 53  | 46  | 40  | 52  | 45  | 40  | 50  | 44  | 39  | 37  |    |    |
| 7   | 64  | 51  | 42  | 36  | 63  | 50  | 42  | 36  | 48  | 41  | 35  | 47  | 40  | 35  | 46  | 39  | 35  | 33  |    |    |
| 8   | 60  | 46  | 38  | 32  | 58  | 46  | 37  | 32  | 44  | 37  | 32  | 43  | 36  | 31  | 42  | 36  | 31  | 29  |    |    |
| 9   | 56  | 43  | 34  | 29  | 55  | 42  | 34  | 29  | 41  | 34  | 28  | 40  | 33  | 28  | 39  | 33  | 28  | 26  |    |    |
| 10  | 53  | 39  | 31  | 26  | 51  | 39  | 31  | 26  | 38  | 31  | 26  | 37  | 30  | 26  | 36  | 30  | 26  | 24  |    |    |

**AVERAGE LUMINANCE (cd/sqm):**

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 3200 | 3200 | 3200 |
| 5°  | 3178 | 3208 | 3226 |
| 10° | 3148 | 3205 | 3241 |
| 15° | 3097 | 3192 | 3250 |
| 20° | 3031 | 3170 | 3258 |
| 25° | 2946 | 3138 | 3253 |
| 30° | 2847 | 3098 | 3249 |
| 35° | 2745 | 3053 | 3259 |
| 40° | 2628 | 3014 | 3270 |
| 45° | 2503 | 2976 | 3296 |
| 50° | 2395 | 2949 | 3322 |
| 55° | 2267 | 2926 | 3374 |
| 60° | 2149 | 2914 | 3409 |
| 65° | 2007 | 2892 | 3436 |
| 70° | 1844 | 2848 | 3484 |
| 75° | 1664 | 2774 | 3360 |
| 80° | 1430 | 2454 | 2531 |
| 85° | 1149 | 1449 | 1149 |



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CATALOG NUMBER: 22CZ2-34HE-SQR-B2750-W2D-2700K

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 106.9  | 3.3       |
| 10°-20°   | 305.7  | 9.5       |
| 20°-30°   | 459.2  | 14.2      |
| 30°-40°   | 547.6  | 17.0      |
| 40°-50°   | 566.2  | 17.5      |
| 50°-60°   | 520.5  | 16.1      |
| 60°-70°   | 414.4  | 12.8      |
| 70°-80°   | 253.2  | 7.8       |
| 80°-90°   | 55.1   | 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       |
| <hr/>     |        |           |
| 0°-30°    | 871.8  | 27.0      |
| 0°-40°    | 1419.5 | 44.0      |
| 0°-60°    | 2506.2 | 77.6      |
| 0°-90°    | 3229.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 3229.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1128 | 1128  | 1128 | 1128  | 1128 |      |
| 5°  | 1116 | 1119  | 1126 | 1131  | 1133 | 106  |
| 15° | 1054 | 1067  | 1087 | 1102  | 1106 | 297  |
| 25° | 941  | 964   | 1002 | 1030  | 1039 | 433  |
| 35° | 792  | 826   | 881  | 927   | 941  | 494  |
| 45° | 624  | 668   | 742  | 802   | 821  | 482  |
| 55° | 458  | 509   | 592  | 659   | 682  | 410  |
| 65° | 299  | 349   | 431  | 490   | 512  | 296  |
| 75° | 152  | 196   | 253  | 297   | 306  | 162  |
| 85° | 35   | 43    | 44   | 38    | 35   | 41   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



TEST NUMBER: P732031

CATALOG NUMBER: 22CZ2-34HE-SQR-B2750-W2D-2700K

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1127.9 | 1127.9 | 1127.9 | 1127.9 | 1127.9 |
| 2.5°  | 1121.7 | 1123.4 | 1127.9 | 1130.9 | 1130.9 |
| 5°    | 1115.6 | 1118.7 | 1126.4 | 1130.9 | 1132.6 |
| 7.5°  | 1106.4 | 1111.1 | 1121.7 | 1127.9 | 1129.5 |
| 10°   | 1092.7 | 1098.9 | 1112.5 | 1121.7 | 1124.8 |
| 12.5° | 1075.8 | 1085.0 | 1101.9 | 1114.2 | 1117.2 |
| 15°   | 1054.3 | 1066.6 | 1086.6 | 1101.9 | 1106.4 |
| 17.5° | 1029.8 | 1045.1 | 1069.6 | 1088.0 | 1094.2 |
| 20°   | 1003.8 | 1019.2 | 1049.8 | 1071.3 | 1078.8 |
| 22.5° | 973.2  | 993.0  | 1028.4 | 1052.9 | 1059.0 |
| 25°   | 940.9  | 964.0  | 1002.2 | 1029.8 | 1039.0 |
| 27.5° | 905.8  | 933.4  | 974.6  | 1008.3 | 1016.1 |
| 30°   | 869.0  | 898.0  | 945.6  | 982.4  | 991.6  |
| 32.5° | 830.6  | 864.3  | 915.0  | 956.2  | 968.5  |
| 35°   | 792.4  | 826.1  | 881.3  | 927.2  | 940.9  |
| 37.5° | 747.8  | 787.7  | 849.0  | 896.6  | 913.3  |
| 40°   | 709.6  | 747.8  | 813.8  | 865.9  | 882.7  |
| 42.5° | 666.7  | 708.0  | 777.0  | 833.6  | 853.7  |
| 45°   | 623.8  | 668.1  | 741.7  | 801.6  | 821.4  |
| 47.5° | 584.0  | 628.3  | 704.9  | 767.9  | 787.7  |
| 50°   | 542.5  | 588.5  | 668.1  | 732.5  | 752.5  |
| 52.5° | 498.1  | 548.6  | 631.4  | 695.7  | 718.8  |
| 55°   | 458.3  | 508.8  | 591.5  | 658.9  | 682.0  |
| 57.5° | 416.8  | 468.9  | 554.7  | 619.1  | 640.6  |
| 60°   | 378.6  | 429.1  | 513.5  | 576.2  | 600.7  |
| 62.5° | 337.1  | 389.2  | 472.0  | 533.3  | 556.4  |
| 65°   | 298.9  | 349.4  | 430.7  | 490.4  | 511.8  |
| 67.5° | 260.5  | 311.2  | 387.8  | 444.4  | 468.9  |
| 70°   | 222.3  | 272.8  | 343.3  | 398.4  | 419.9  |
| 72.5° | 188.6  | 232.9  | 300.4  | 351.0  | 370.8  |
| 75°   | 151.8  | 196.2  | 253.0  | 297.3  | 306.5  |
| 77.5° | 118.1  | 157.9  | 205.3  | 225.4  | 228.4  |
| 80°   | 87.5   | 118.1  | 150.2  | 154.9  | 154.9  |
| 82.5° | 58.2   | 81.3   | 93.6   | 95.0   | 93.6   |
| 85°   | 35.3   | 42.9   | 44.5   | 38.4   | 35.3   |
| 87.5° | 12.3   | 12.3   | 7.8    | 4.7    | 1.6    |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |



Report Generated By 670246072 / DESKTOP-50001EG





— 0°-180°    - - 45°-225°    - - - 90°-270°







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

Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

METALUX

Report Number: SP1-2210-795-1

Test Date: 10/06/2022

Luminaire Tested: 9WP217084MDER4AM-2700K-315MA

Data in this report applies to families of products including 9WP217084MDER4AM-2700K.

Test Method: LM-79-2019  
Report Number: SP1-2210-795-1  
Test Lab: COOPER LIGHTING SOLUTIONS  
Photometer: SP1 - 76IN SPHERE  
Measurement Geometry: 4π  
Issue Date: 10/06/2022  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: **9WP217084MDER4AM-2700K-315MA**  
Description: METALUX

REPORT NUMBER: SP1-2210-795-1

| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | 76INCH SPHERE IN0058  | 8/8/2022         | 2/8/2023             |
| Power Meter                    | XITRON 2801 IN0071    | 11/29/2021       | 11/29/2022           |
| AC Power Source                | CHROMA 61603 IN0063   | 11/29/2021       | 11/29/2022           |
| DC Power Source                | AGILENT E3634A IN0208 | 11/29/2021       | 11/29/2022           |
| Sphere Thermometer             | ONSET IN0085          | 11/29/2021       | 11/29/2022           |
| Room Thermometer               | ONSET IN0046          | 11/29/2021       | 11/29/2022           |

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**CIE 1931 Chromaticity Diagram**



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



Point lies inside the ANSI 2700K 4-step quadrangle

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**Photopic Flux vs. Wavelength**

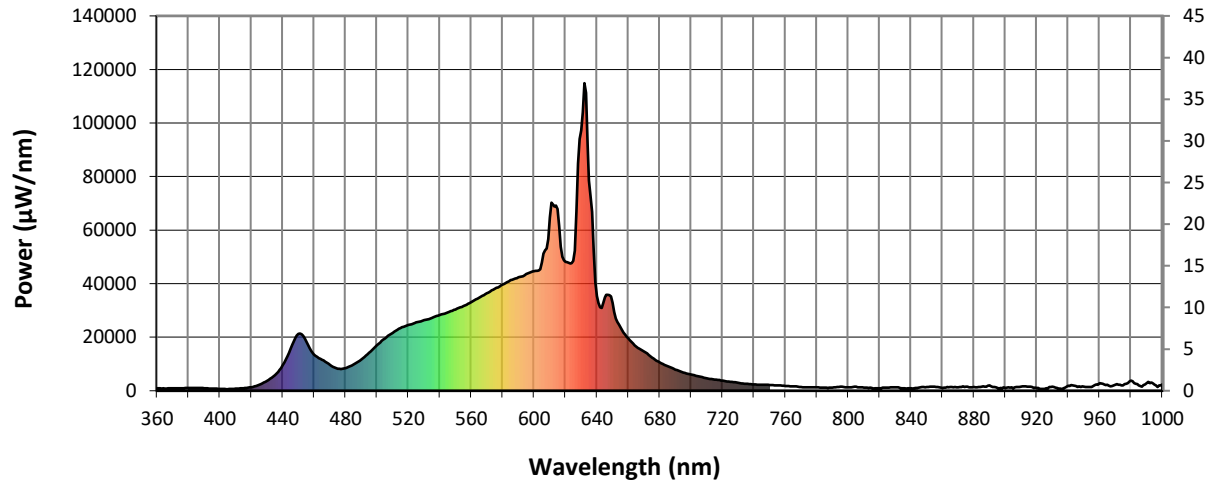


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| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) |
|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|
| 360       | 960              | NR               | 490       | 11655            | NR               | 620       | 48137            | NR               | 750       | 2159             | NR               | 880       | 1428             | NR               |
| 365       | 835              | NR               | 495       | 14187            | NR               | 625       | 48484            | NR               | 755       | 2025             | NR               | 885       | 1524             | NR               |
| 370       | 889              | NR               | 500       | 17034            | NR               | 630       | 97268            | NR               | 760       | 1802             | NR               | 890       | 1952             | NR               |
| 375       | 919              | NR               | 505       | 19485            | NR               | 635       | 78475            | NR               | 765       | 1584             | NR               | 895       | 1011             | NR               |
| 380       | 1009             | NR               | 510       | 21619            | NR               | 640       | 35314            | NR               | 770       | 1353             | NR               | 900       | 1014             | NR               |
| 385       | 1040             | NR               | 515       | 23444            | NR               | 645       | 34925            | NR               | 775       | 1274             | NR               | 905       | 955              | NR               |
| 390       | 939              | NR               | 520       | 24555            | NR               | 650       | 32851            | NR               | 780       | 1257             | NR               | 910       | 1509             | NR               |
| 395       | 813              | NR               | 525       | 25491            | NR               | 655       | 23599            | NR               | 785       | 1107             | NR               | 915       | 1506             | NR               |
| 400       | 710              | NR               | 530       | 26360            | NR               | 660       | 19532            | NR               | 790       | 1143             | NR               | 920       | 1068             | NR               |
| 405       | 620              | NR               | 535       | 27190            | NR               | 665       | 16486            | NR               | 795       | 1531             | NR               | 925       | 638              | NR               |
| 410       | 774              | NR               | 540       | 28277            | NR               | 670       | 14655            | NR               | 800       | 1331             | NR               | 930       | 1536             | NR               |
| 415       | 979              | NR               | 545       | 29229            | NR               | 675       | 12412            | NR               | 805       | 1467             | NR               | 935       | 842              | NR               |
| 420       | 1333             | NR               | 550       | 30350            | NR               | 680       | 10584            | NR               | 810       | 1194             | NR               | 940       | 1826             | NR               |
| 425       | 2180             | NR               | 555       | 31650            | NR               | 685       | 9145             | NR               | 815       | 1068             | NR               | 945       | 1708             | NR               |
| 430       | 3664             | NR               | 560       | 33070            | NR               | 690       | 7913             | NR               | 820       | 903              | NR               | 950       | 1541             | NR               |
| 435       | 5835             | NR               | 565       | 34723            | NR               | 695       | 6836             | NR               | 825       | 1155             | NR               | 955       | 1365             | NR               |
| 440       | 9472             | NR               | 570       | 36375            | NR               | 700       | 6062             | NR               | 830       | 1254             | NR               | 960       | 2795             | NR               |
| 445       | 15693            | NR               | 575       | 38067            | NR               | 705       | 5352             | NR               | 835       | 969              | NR               | 965       | 2273             | NR               |
| 450       | 21182            | NR               | 580       | 39619            | NR               | 710       | 4621             | NR               | 840       | 885              | NR               | 970       | 2269             | NR               |
| 455       | 18329            | NR               | 585       | 41308            | NR               | 715       | 4197             | NR               | 845       | 1169             | NR               | 975       | 2026             | NR               |
| 460       | 13472            | NR               | 590       | 42407            | NR               | 720       | 3736             | NR               | 850       | 1432             | NR               | 980       | 3840             | NR               |
| 465       | 11611            | NR               | 595       | 43552            | NR               | 725       | 3370             | NR               | 855       | 1474             | NR               | 985       | 2004             | NR               |
| 470       | 9668             | NR               | 600       | 44708            | NR               | 730       | 2929             | NR               | 860       | 1037             | NR               | 990       | 2889             | NR               |
| 475       | 8254             | NR               | 605       | 47912            | NR               | 735       | 2599             | NR               | 865       | 1441             | NR               | 995       | 2268             | NR               |
| 480       | 8432             | NR               | 610       | 64799            | NR               | 740       | 2366             | NR               | 870       | 1316             | NR               | 1000      | 2322             | NR               |
| 485       | 9747             | NR               | 615       | 67855            | NR               | 745       | 2257             | NR               | 875       | 1515             | NR               |           |                  |                  |

REPORT NUMBER: SP1-2210-795-1

**Scotopic Flux vs. Wavelength**



**Scotopic Lumens: 3229.5**

**S/P: 1.28**

| 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       | 960              | NR               | 490       | 11655            | NR               | 620       | 48137            | NR               | 750       | 2159             | NR               | 880       | 1428             | NR               |
| 365       | 835              | NR               | 495       | 14187            | NR               | 625       | 48484            | NR               | 755       | 2025             | NR               | 885       | 1524             | NR               |
| 370       | 889              | NR               | 500       | 17034            | NR               | 630       | 97268            | NR               | 760       | 1802             | NR               | 890       | 1952             | NR               |
| 375       | 919              | NR               | 505       | 19485            | NR               | 635       | 78475            | NR               | 765       | 1584             | NR               | 895       | 1011             | NR               |
| 380       | 1009             | NR               | 510       | 21619            | NR               | 640       | 35314            | NR               | 770       | 1353             | NR               | 900       | 1014             | NR               |
| 385       | 1040             | NR               | 515       | 23444            | NR               | 645       | 34925            | NR               | 775       | 1274             | NR               | 905       | 955              | NR               |
| 390       | 939              | NR               | 520       | 24555            | NR               | 650       | 32851            | NR               | 780       | 1257             | NR               | 910       | 1509             | NR               |
| 395       | 813              | NR               | 525       | 25491            | NR               | 655       | 23599            | NR               | 785       | 1107             | NR               | 915       | 1506             | NR               |
| 400       | 710              | NR               | 530       | 26360            | NR               | 660       | 19532            | NR               | 790       | 1143             | NR               | 920       | 1068             | NR               |
| 405       | 620              | NR               | 535       | 27190            | NR               | 665       | 16486            | NR               | 795       | 1531             | NR               | 925       | 638              | NR               |
| 410       | 774              | NR               | 540       | 28277            | NR               | 670       | 14655            | NR               | 800       | 1331             | NR               | 930       | 1536             | NR               |
| 415       | 979              | NR               | 545       | 29229            | NR               | 675       | 12412            | NR               | 805       | 1467             | NR               | 935       | 842              | NR               |
| 420       | 1333             | NR               | 550       | 30350            | NR               | 680       | 10584            | NR               | 810       | 1194             | NR               | 940       | 1826             | NR               |
| 425       | 2180             | NR               | 555       | 31650            | NR               | 685       | 9145             | NR               | 815       | 1068             | NR               | 945       | 1708             | NR               |
| 430       | 3664             | NR               | 560       | 33070            | NR               | 690       | 7913             | NR               | 820       | 903              | NR               | 950       | 1541             | NR               |
| 435       | 5835             | NR               | 565       | 34723            | NR               | 695       | 6836             | NR               | 825       | 1155             | NR               | 955       | 1365             | NR               |
| 440       | 9472             | NR               | 570       | 36375            | NR               | 700       | 6062             | NR               | 830       | 1254             | NR               | 960       | 2795             | NR               |
| 445       | 15693            | NR               | 575       | 38067            | NR               | 705       | 5352             | NR               | 835       | 969              | NR               | 965       | 2273             | NR               |
| 450       | 21182            | NR               | 580       | 39619            | NR               | 710       | 4621             | NR               | 840       | 885              | NR               | 970       | 2269             | NR               |
| 455       | 18329            | NR               | 585       | 41308            | NR               | 715       | 4197             | NR               | 845       | 1169             | NR               | 975       | 2026             | NR               |
| 460       | 13472            | NR               | 590       | 42407            | NR               | 720       | 3736             | NR               | 850       | 1432             | NR               | 980       | 3840             | NR               |
| 465       | 11611            | NR               | 595       | 43552            | NR               | 725       | 3370             | NR               | 855       | 1474             | NR               | 985       | 2004             | NR               |
| 470       | 9668             | NR               | 600       | 44708            | NR               | 730       | 2929             | NR               | 860       | 1037             | NR               | 990       | 2889             | NR               |
| 475       | 8254             | NR               | 605       | 47912            | NR               | 735       | 2599             | NR               | 865       | 1441             | NR               | 995       | 2268             | NR               |
| 480       | 8432             | NR               | 610       | 64799            | NR               | 740       | 2366             | NR               | 870       | 1316             | NR               | 1000      | 2322             | NR               |
| 485       | 9747             | NR               | 615       | 67855            | NR               | 745       | 2257             | NR               | 875       | 1515             | NR               |           |                  |                  |

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**Melanopic Flux vs. Wavelength**



**Melanopic Lumens: 1204.8**

**S/P: 0.48**

| 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       | 960              | NR               | 490       | 11655            | NR               | 620       | 48137            | NR               | 750       | 2159             | NR               | 880       | 1428             | NR               |
| 365       | 835              | NR               | 495       | 14187            | NR               | 625       | 48484            | NR               | 755       | 2025             | NR               | 885       | 1524             | NR               |
| 370       | 889              | NR               | 500       | 17034            | NR               | 630       | 97268            | NR               | 760       | 1802             | NR               | 890       | 1952             | NR               |
| 375       | 919              | NR               | 505       | 19485            | NR               | 635       | 78475            | NR               | 765       | 1584             | NR               | 895       | 1011             | NR               |
| 380       | 1009             | NR               | 510       | 21619            | NR               | 640       | 35314            | NR               | 770       | 1353             | NR               | 900       | 1014             | NR               |
| 385       | 1040             | NR               | 515       | 23444            | NR               | 645       | 34925            | NR               | 775       | 1274             | NR               | 905       | 955              | NR               |
| 390       | 939              | NR               | 520       | 24555            | NR               | 650       | 32851            | NR               | 780       | 1257             | NR               | 910       | 1509             | NR               |
| 395       | 813              | NR               | 525       | 25491            | NR               | 655       | 23599            | NR               | 785       | 1107             | NR               | 915       | 1506             | NR               |
| 400       | 710              | NR               | 530       | 26360            | NR               | 660       | 19532            | NR               | 790       | 1143             | NR               | 920       | 1068             | NR               |
| 405       | 620              | NR               | 535       | 27190            | NR               | 665       | 16486            | NR               | 795       | 1531             | NR               | 925       | 638              | NR               |
| 410       | 774              | NR               | 540       | 28277            | NR               | 670       | 14655            | NR               | 800       | 1331             | NR               | 930       | 1536             | NR               |
| 415       | 979              | NR               | 545       | 29229            | NR               | 675       | 12412            | NR               | 805       | 1467             | NR               | 935       | 842              | NR               |
| 420       | 1333             | NR               | 550       | 30350            | NR               | 680       | 10584            | NR               | 810       | 1194             | NR               | 940       | 1826             | NR               |
| 425       | 2180             | NR               | 555       | 31650            | NR               | 685       | 9145             | NR               | 815       | 1068             | NR               | 945       | 1708             | NR               |
| 430       | 3664             | NR               | 560       | 33070            | NR               | 690       | 7913             | NR               | 820       | 903              | NR               | 950       | 1541             | NR               |
| 435       | 5835             | NR               | 565       | 34723            | NR               | 695       | 6836             | NR               | 825       | 1155             | NR               | 955       | 1365             | NR               |
| 440       | 9472             | NR               | 570       | 36375            | NR               | 700       | 6062             | NR               | 830       | 1254             | NR               | 960       | 2795             | NR               |
| 445       | 15693            | NR               | 575       | 38067            | NR               | 705       | 5352             | NR               | 835       | 969              | NR               | 965       | 2273             | NR               |
| 450       | 21182            | NR               | 580       | 39619            | NR               | 710       | 4621             | NR               | 840       | 885              | NR               | 970       | 2269             | NR               |
| 455       | 18329            | NR               | 585       | 41308            | NR               | 715       | 4197             | NR               | 845       | 1169             | NR               | 975       | 2026             | NR               |
| 460       | 13472            | NR               | 590       | 42407            | NR               | 720       | 3736             | NR               | 850       | 1432             | NR               | 980       | 3840             | NR               |
| 465       | 11611            | NR               | 595       | 43552            | NR               | 725       | 3370             | NR               | 855       | 1474             | NR               | 985       | 2004             | NR               |
| 470       | 9668             | NR               | 600       | 44708            | NR               | 730       | 2929             | NR               | 860       | 1037             | NR               | 990       | 2889             | NR               |
| 475       | 8254             | NR               | 605       | 47912            | NR               | 735       | 2599             | NR               | 865       | 1441             | NR               | 995       | 2268             | NR               |
| 480       | 8432             | NR               | 610       | 64799            | NR               | 740       | 2366             | NR               | 870       | 1316             | NR               | 1000      | 2322             | NR               |
| 485       | 9747             | NR               | 615       | 67855            | NR               | 745       | 2257             | NR               | 875       | 1515             | NR               |           |                  |                  |

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### Summary

$R_f = 91.5$   
 $R_g = 101.3$   
 CIE  $R_a = 94.1$   
 $R_g = 58.8$



### Color Vector Graphics



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 92 | CES51 = 96 | CES76 = 91 |
| CES02 = 64 | CES27 = 97 | CES52 = 95 | CES77 = 83 |
| CES03 = 32 | CES28 = 97 | CES53 = 93 | CES78 = 88 |
| CES04 = 71 | CES29 = 91 | CES54 = 98 | CES79 = 87 |
| CES05 = 51 | CES30 = 96 | CES55 = 99 | CES80 = 90 |
| CES06 = 51 | CES31 = 91 | CES56 = 95 | CES81 = 67 |
| CES07 = 44 | CES32 = 84 | CES57 = 95 | CES82 = 95 |
| CES08 = 43 | CES33 = 92 | CES58 = 95 | CES83 = 92 |
| CES09 = 29 | CES34 = 94 | CES59 = 99 | CES84 = 96 |
| CES10 = 77 | CES35 = 97 | CES60 = 97 | CES85 = 79 |
| CES11 = 59 | CES36 = 91 | CES61 = 97 | CES86 = 75 |
| CES12 = 66 | CES37 = 94 | CES62 = 94 | CES87 = 92 |
| CES13 = 45 | CES38 = 99 | CES63 = 94 | CES88 = 96 |
| CES14 = 74 | CES39 = 97 | CES64 = 97 | CES89 = 81 |
| CES15 = 72 | CES40 = 94 | CES65 = 92 | CES90 = 97 |
| CES16 = 48 | CES41 = 94 | CES66 = 95 | CES91 = 86 |
| CES17 = 50 | CES42 = 92 | CES67 = 95 | CES92 = 78 |
| CES18 = 57 | CES43 = 90 | CES68 = 94 | CES93 = 87 |
| CES19 = 72 | CES44 = 99 | CES69 = 95 | CES94 = 72 |
| CES20 = 68 | CES45 = 94 | CES70 = 92 | CES95 = 86 |
| CES21 = 87 | CES46 = 93 | CES71 = 92 | CES96 = 92 |
| CES22 = 79 | CES47 = 84 | CES72 = 97 | CES97 = 93 |
| CES23 = 92 | CES48 = 94 | CES73 = 88 | CES98 = 93 |
| CES24 = 91 | CES49 = 91 | CES74 = 88 | CES99 = 92 |
| CES25 = 72 | CES50 = 96 | CES75 = 92 |            |



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Color Rendition by Hue-Angle Bin



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**Measure Comparisons**



(END OF REPORT)