

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: P474877

Luminaire Tested: **22CZ2-20-S-UNV-L830-CD1-U**

Issue Date: 02/10/2021

Test Information

Test Method: LM-79-08
Report Number: P474877
Test Lab: INNOVATION CENTER(G3)
Issue Date: 02/10/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: 22CZ2-20-S-UNV-L830-CD1-U
Description: 2'X2' TROFFER LED MODULE, SMOOTH LENS
Light Source: 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

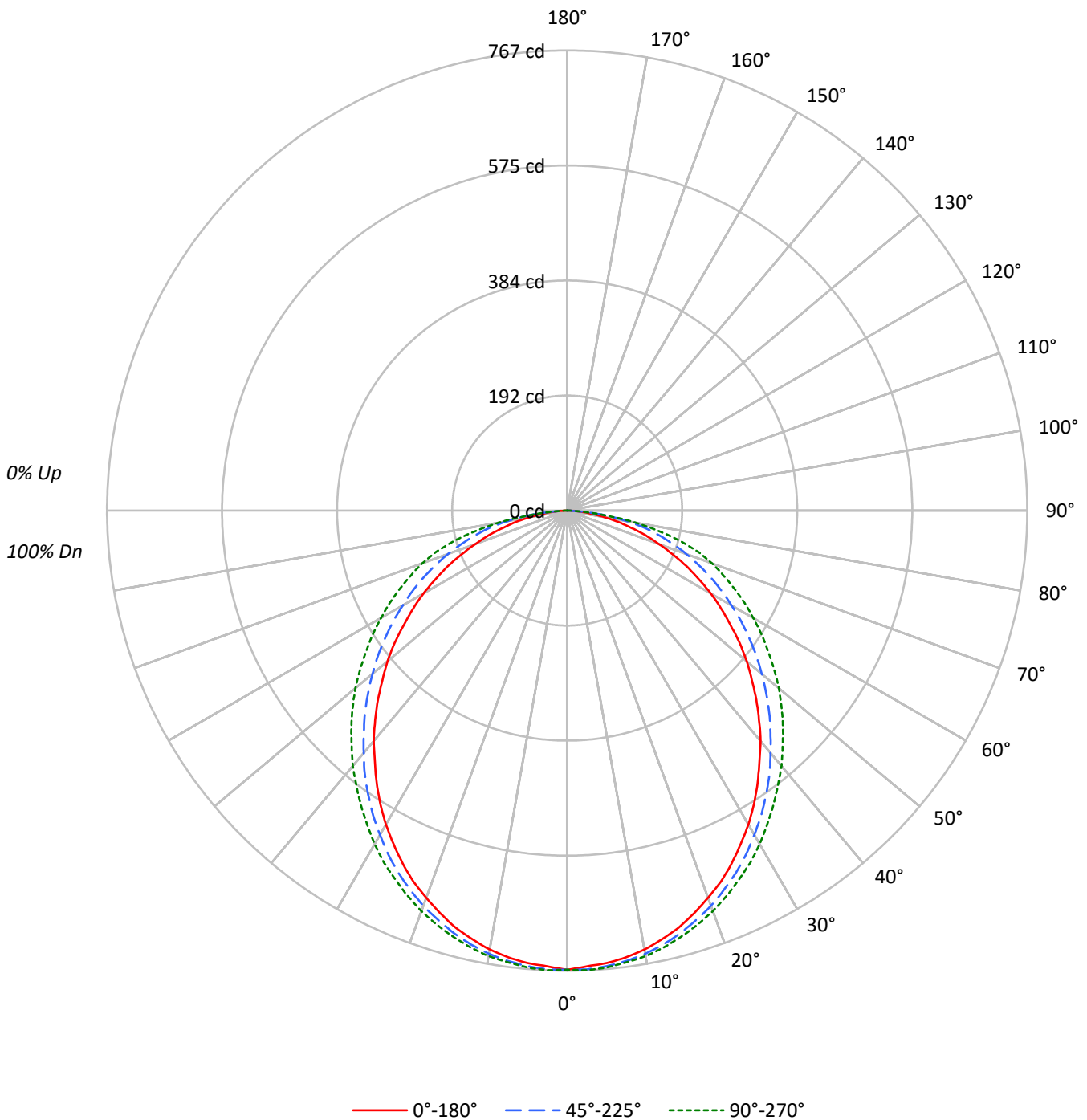
Lumens per Lamp: N/A
Luminaire Lumens: 2108.5 lumens
Efficiency: N/A
Efficacy: 130.2 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.25 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

Input Watts (W): 16.2
Input Voltage (V): 120
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



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

| | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| RF | 20 | | | | 20 | | | | 20 | | | | 20 | | | | 20 | |
| RC | 80 | | | | 70 | | | | 50 | | | | 30 | | | | 10 | 0 |
| RW | 70 | 50 | 30 | 10 | 70 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 0 |
| 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 | 88 | 86 | 83 |
| 2 | 99 | 90 | 83 | 77 | 96 | 88 | 82 | 77 | 85 | 79 | 75 | 81 | 77 | 73 | 78 | 75 | 71 | 69 |
| 3 | 90 | 79 | 71 | 64 | 87 | 78 | 70 | 64 | 75 | 68 | 63 | 72 | 66 | 61 | 69 | 64 | 60 | 58 |
| 4 | 82 | 70 | 61 | 54 | 80 | 69 | 60 | 54 | 66 | 59 | 53 | 64 | 58 | 53 | 62 | 56 | 52 | 50 |
| 5 | 76 | 63 | 54 | 47 | 74 | 62 | 53 | 47 | 59 | 52 | 46 | 57 | 51 | 46 | 56 | 50 | 45 | 43 |
| 6 | 70 | 56 | 47 | 41 | 68 | 55 | 47 | 41 | 54 | 46 | 40 | 52 | 45 | 40 | 50 | 44 | 40 | 38 |
| 7 | 65 | 51 | 42 | 36 | 63 | 50 | 42 | 36 | 49 | 41 | 36 | 47 | 41 | 36 | 46 | 40 | 35 | 33 |
| 8 | 60 | 47 | 38 | 32 | 59 | 46 | 38 | 32 | 45 | 37 | 32 | 43 | 37 | 32 | 42 | 36 | 32 | 30 |
| 9 | 56 | 43 | 35 | 29 | 55 | 42 | 34 | 29 | 41 | 34 | 29 | 40 | 33 | 29 | 39 | 33 | 29 | 27 |
| 10 | 53 | 40 | 32 | 26 | 52 | 39 | 32 | 26 | 38 | 31 | 26 | 37 | 31 | 26 | 36 | 30 | 26 | 24 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 2060 | 2060 | 2060 |
| 5° | 2045 | 2059 | 2065 |
| 10° | 2030 | 2050 | 2061 |
| 15° | 2004 | 2031 | 2048 |
| 20° | 1967 | 2008 | 2034 |
| 25° | 1927 | 1977 | 2013 |
| 30° | 1877 | 1939 | 1995 |
| 35° | 1819 | 1899 | 1969 |
| 40° | 1762 | 1853 | 1952 |
| 45° | 1697 | 1814 | 1936 |
| 50° | 1636 | 1773 | 1929 |
| 55° | 1559 | 1738 | 1920 |
| 60° | 1489 | 1703 | 1928 |
| 65° | 1397 | 1683 | 1956 |
| 70° | 1277 | 1662 | 2020 |
| 75° | 1146 | 1650 | 2021 |
| 80° | 965 | 1557 | 1795 |
| 85° | 726 | 1056 | 976 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 72.3 | 3.4 |
| 10°-20° | 205.3 | 9.7 |
| 20°-30° | 306.1 | 14.5 |
| 30°-40° | 361.2 | 17.1 |
| 40°-50° | 368.0 | 17.5 |
| 50°-60° | 331.9 | 15.7 |
| 60°-70° | 260.6 | 12.4 |
| 70°-80° | 162.9 | 7.7 |
| 80°-90° | 40.2 | 1.9 |
| 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°-30° | 583.7 | 27.7 |
| 0°-40° | 944.9 | 44.8 |
| 0°-60° | 1644.8 | 78.0 |
| 0°-90° | 2108.5 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 2108.5 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0° | 765 | 765 | 765 | 765 | 765 | |
| 5° | 757 | 759 | 762 | 764 | 764 | 72 |
| 15° | 720 | 722 | 729 | 734 | 735 | 203 |
| 25° | 649 | 653 | 666 | 676 | 678 | 299 |
| 35° | 554 | 561 | 578 | 594 | 600 | 346 |
| 45° | 446 | 454 | 477 | 500 | 509 | 344 |
| 55° | 332 | 343 | 370 | 399 | 409 | 298 |
| 65° | 219 | 231 | 264 | 294 | 307 | 217 |
| 75° | 110 | 126 | 159 | 186 | 194 | 118 |
| 85° | 24 | 30 | 34 | 34 | 32 | 29 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P474877

CATALOG NUMBER: 22CZ2-20-S-UNV-L830-CD1-U

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|-------|-------|-------|-------|-------|
| 0° | 765.4 | 765.4 | 765.4 | 765.4 | 765.4 |
| 2.5° | 760.3 | 761.8 | 765.4 | 766.9 | 766.9 |
| 5° | 757.2 | 758.7 | 762.3 | 763.9 | 764.4 |
| 7.5° | 751.1 | 753.1 | 757.2 | 759.3 | 759.3 |
| 10° | 742.9 | 745.5 | 750.1 | 753.1 | 754.2 |
| 12.5° | 731.7 | 734.8 | 740.9 | 744.5 | 745.5 |
| 15° | 719.5 | 722.0 | 729.2 | 734.3 | 735.3 |
| 17.5° | 703.6 | 707.7 | 715.4 | 722.0 | 723.5 |
| 20° | 686.8 | 691.4 | 701.1 | 708.7 | 710.3 |
| 22.5° | 669.5 | 673.0 | 683.7 | 692.9 | 695.0 |
| 25° | 649.0 | 652.6 | 665.9 | 675.6 | 678.1 |
| 27.5° | 626.6 | 632.7 | 646.0 | 657.2 | 661.3 |
| 30° | 604.1 | 610.3 | 624.0 | 637.3 | 641.9 |
| 32.5° | 579.6 | 586.3 | 602.1 | 615.9 | 620.5 |
| 35° | 553.6 | 561.3 | 578.1 | 593.9 | 599.5 |
| 37.5° | 526.6 | 535.3 | 554.1 | 571.0 | 577.1 |
| 40° | 501.6 | 507.7 | 527.6 | 547.0 | 555.7 |
| 42.5° | 473.5 | 481.7 | 501.6 | 523.5 | 531.7 |
| 45° | 446.0 | 453.6 | 476.6 | 499.5 | 508.7 |
| 47.5° | 417.4 | 427.1 | 450.0 | 475.6 | 484.7 |
| 50° | 390.9 | 399.0 | 423.5 | 450.6 | 460.8 |
| 52.5° | 362.3 | 371.0 | 397.5 | 425.6 | 434.7 |
| 55° | 332.2 | 342.9 | 370.4 | 399.0 | 409.2 |
| 57.5° | 304.6 | 314.8 | 343.9 | 373.5 | 384.2 |
| 60° | 276.6 | 286.8 | 316.4 | 346.5 | 358.2 |
| 62.5° | 247.0 | 258.7 | 290.8 | 319.9 | 333.2 |
| 65° | 219.4 | 231.1 | 264.3 | 293.9 | 307.2 |
| 67.5° | 190.3 | 204.1 | 237.3 | 268.4 | 281.7 |
| 70° | 162.3 | 178.6 | 211.2 | 241.9 | 256.7 |
| 72.5° | 137.3 | 150.5 | 184.7 | 216.9 | 229.1 |
| 75° | 110.2 | 125.5 | 158.7 | 185.7 | 194.4 |
| 77.5° | 87.3 | 100.5 | 132.2 | 150.0 | 155.6 |
| 80° | 62.3 | 77.0 | 100.5 | 111.2 | 115.8 |
| 82.5° | 41.3 | 53.6 | 68.4 | 70.4 | 69.4 |
| 85° | 23.5 | 30.1 | 34.2 | 33.7 | 31.6 |
| 87.5° | 9.2 | 10.2 | 7.7 | 4.6 | 3.6 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)