

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: P474583

Luminaire Tested: **24CZ2-35VHE-SQR-UNV-L830-CD1-U**

Issue Date: 01/28/2021

Test Information

Test Method: LM-79-08
Report Number: P474583
Test Lab: INNOVATION CENTER(G3)
Issue Date: 01/28/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: 24CZ2-35VHE-SQR-UNV-L830-CD1-U
Description: 2'X4' TROFFER LED MODULE, VERY HIGH EFFICIENCY,SQUARE LENS
Light Source: 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3247.3 lumens
Efficiency: N/A
Efficacy: 135.9 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.3 / 1.39
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

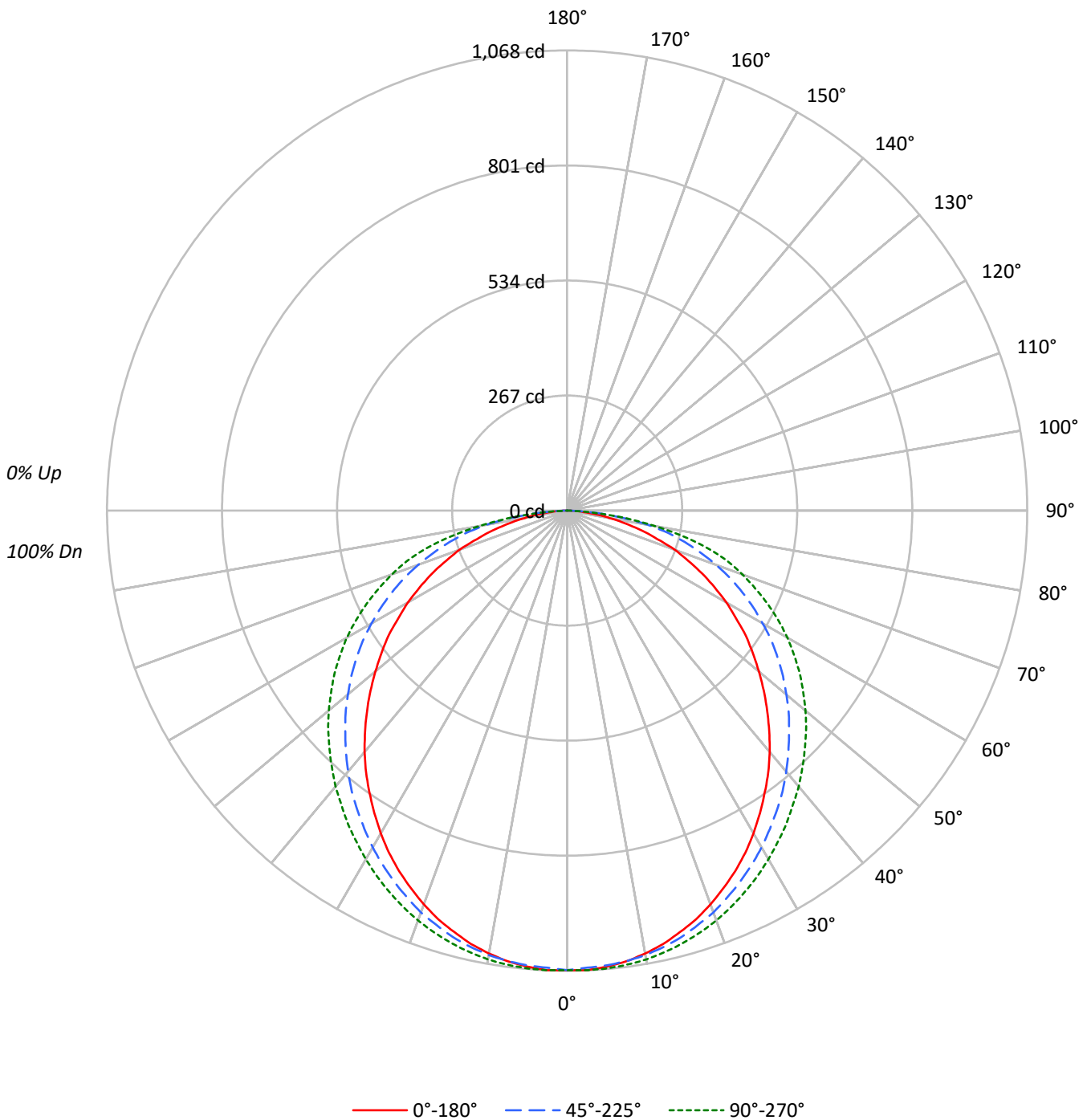
Input Watts (W): 23.9
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P474583

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Luminous Intensity Polar Plot





TEST NUMBER: P474583

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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

| | | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| RF | 20 | | | | 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 | 50 | 30 | 10 |
| RCR | | | | | | | | | | | | | | | | | | | | |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 | 100 | |
| 1 | 108 | 103 | 98 | 94 | 105 | 101 | 96 | 93 | 96 | 93 | 90 | 92 | 90 | 87 | 89 | 87 | 84 | 82 | 82 | |
| 2 | 98 | 89 | 82 | 76 | 95 | 87 | 81 | 75 | 84 | 78 | 73 | 80 | 76 | 71 | 77 | 73 | 70 | 68 | 68 | |
| 3 | 89 | 78 | 69 | 62 | 86 | 76 | 68 | 62 | 73 | 66 | 61 | 70 | 64 | 60 | 68 | 63 | 59 | 56 | 56 | |
| 4 | 81 | 69 | 59 | 53 | 79 | 67 | 59 | 52 | 65 | 57 | 51 | 62 | 56 | 51 | 60 | 55 | 50 | 48 | 48 | |
| 5 | 74 | 61 | 52 | 45 | 72 | 60 | 51 | 45 | 58 | 50 | 44 | 56 | 49 | 44 | 54 | 48 | 43 | 41 | 41 | |
| 6 | 69 | 55 | 46 | 39 | 67 | 54 | 45 | 39 | 52 | 44 | 39 | 50 | 43 | 38 | 49 | 43 | 38 | 36 | 36 | |
| 7 | 64 | 50 | 41 | 34 | 62 | 49 | 40 | 34 | 47 | 40 | 34 | 46 | 39 | 34 | 44 | 38 | 33 | 31 | 31 | |
| 8 | 59 | 45 | 37 | 31 | 58 | 45 | 36 | 31 | 43 | 36 | 30 | 42 | 35 | 30 | 41 | 35 | 30 | 28 | 28 | |
| 9 | 55 | 42 | 33 | 28 | 54 | 41 | 33 | 27 | 40 | 32 | 27 | 39 | 32 | 27 | 38 | 31 | 27 | 25 | 25 | |
| 10 | 52 | 38 | 30 | 25 | 50 | 38 | 30 | 25 | 37 | 30 | 25 | 36 | 29 | 25 | 35 | 29 | 24 | 23 | 23 | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 2870 | 2870 | 2870 |
| 5° | 2870 | 2862 | 2881 |
| 10° | 2852 | 2862 | 2890 |
| 15° | 2821 | 2856 | 2895 |
| 20° | 2786 | 2842 | 2899 |
| 25° | 2740 | 2822 | 2899 |
| 30° | 2687 | 2805 | 2903 |
| 35° | 2626 | 2788 | 2914 |
| 40° | 2570 | 2779 | 2938 |
| 45° | 2500 | 2772 | 2970 |
| 50° | 2432 | 2780 | 3023 |
| 55° | 2375 | 2799 | 3091 |
| 60° | 2295 | 2820 | 3178 |
| 65° | 2203 | 2854 | 3273 |
| 70° | 2090 | 2894 | 3404 |
| 75° | 1871 | 2934 | 3517 |
| 80° | 1576 | 2943 | 3192 |
| 85° | 1170 | 2226 | 2100 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 101.1 | 3.1 |
| 10°-20° | 289.7 | 8.9 |
| 20°-30° | 438.5 | 13.5 |
| 30°-40° | 530.5 | 16.3 |
| 40°-50° | 560.0 | 17.2 |
| 50°-60° | 528.1 | 16.3 |
| 60°-70° | 435.3 | 13.4 |
| 70°-80° | 285.6 | 8.8 |
| 80°-90° | 78.5 | 2.4 |
| 90°-100° | 0.0 | 0.0 |
| 100°-110° | 0.0 | 0.0 |
| 110°-120° | 0.0 | 0.0 |
| 120°-130° | 0.0 | 0.0 |
| 130°-140° | 0.0 | 0.0 |
| 140°-150° | 0.0 | 0.0 |
| 150°-160° | 0.0 | 0.0 |
| 160°-170° | 0.0 | 0.0 |
| 170°-180° | 0.0 | 0.0 |
| 0°-30° | 829.3 | 25.5 |
| 0°-40° | 1359.8 | 41.9 |
| 0°-60° | 2447.8 | 75.4 |
| 0°-90° | 3247.3 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 3247.3 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1067 | 1067 | 1067 | 1067 | 1067 | |
| 5° | 1062 | 1062 | 1059 | 1067 | 1067 | 101 |
| 15° | 1013 | 1018 | 1025 | 1037 | 1039 | 286 |
| 25° | 923 | 934 | 950 | 970 | 976 | 425 |
| 35° | 800 | 820 | 849 | 878 | 887 | 500 |
| 45° | 657 | 686 | 728 | 767 | 780 | 507 |
| 55° | 506 | 542 | 597 | 641 | 659 | 451 |
| 65° | 346 | 388 | 448 | 496 | 514 | 342 |
| 75° | 180 | 226 | 282 | 327 | 338 | 190 |
| 85° | 38 | 65 | 72 | 70 | 68 | 47 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P474583

CATALOG NUMBER: 24CZ2-35VHE-SQR-UNV-L830-CD1-U

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1066.6 | 1066.6 | 1066.6 | 1066.6 | 1066.6 |
| 2.5° | 1067.7 | 1066.6 | 1062.0 | 1068.2 | 1067.7 |
| 5° | 1062.5 | 1062.5 | 1059.4 | 1066.6 | 1066.6 |
| 7.5° | 1055.2 | 1055.7 | 1054.7 | 1063.0 | 1063.0 |
| 10° | 1043.8 | 1045.9 | 1047.4 | 1056.8 | 1057.8 |
| 12.5° | 1030.3 | 1034.0 | 1037.1 | 1048.5 | 1049.5 |
| 15° | 1012.7 | 1018.4 | 1025.1 | 1037.1 | 1039.1 |
| 17.5° | 994.5 | 1001.3 | 1008.5 | 1024.1 | 1026.7 |
| 20° | 972.7 | 980.5 | 992.5 | 1008.0 | 1012.2 |
| 22.5° | 948.4 | 959.2 | 971.7 | 990.4 | 995.6 |
| 25° | 922.9 | 934.3 | 950.4 | 970.1 | 976.4 |
| 27.5° | 895.4 | 908.9 | 927.1 | 949.9 | 956.7 |
| 30° | 864.8 | 880.4 | 902.7 | 927.1 | 934.3 |
| 32.5° | 832.7 | 850.8 | 875.7 | 902.7 | 911.0 |
| 35° | 799.5 | 820.2 | 848.7 | 877.8 | 887.1 |
| 37.5° | 766.8 | 787.5 | 821.3 | 851.9 | 860.7 |
| 40° | 731.5 | 754.3 | 791.2 | 823.8 | 836.3 |
| 42.5° | 694.1 | 721.1 | 760.0 | 796.3 | 808.3 |
| 45° | 656.8 | 686.4 | 728.4 | 767.3 | 780.3 |
| 47.5° | 618.9 | 651.6 | 697.8 | 737.2 | 752.3 |
| 50° | 581.0 | 615.8 | 664.1 | 706.6 | 722.2 |
| 52.5° | 542.7 | 579.0 | 631.4 | 676.5 | 690.5 |
| 55° | 506.3 | 542.1 | 596.6 | 641.2 | 658.9 |
| 57.5° | 464.3 | 504.8 | 562.4 | 607.5 | 624.6 |
| 60° | 426.4 | 465.9 | 524.0 | 571.7 | 590.4 |
| 62.5° | 385.5 | 425.9 | 487.1 | 534.9 | 553.0 |
| 65° | 346.0 | 387.5 | 448.2 | 496.0 | 514.1 |
| 67.5° | 303.5 | 347.1 | 409.3 | 455.5 | 473.1 |
| 70° | 265.6 | 306.6 | 367.8 | 415.0 | 432.7 |
| 72.5° | 219.4 | 266.1 | 324.8 | 371.5 | 390.7 |
| 75° | 180.0 | 226.2 | 282.2 | 326.8 | 338.3 |
| 77.5° | 138.5 | 184.7 | 240.2 | 269.3 | 277.0 |
| 80° | 101.7 | 145.3 | 189.9 | 205.4 | 206.0 |
| 82.5° | 68.5 | 106.9 | 132.3 | 140.1 | 139.0 |
| 85° | 37.9 | 65.4 | 72.1 | 70.0 | 68.0 |
| 87.5° | 15.6 | 21.8 | 17.6 | 12.5 | 9.9 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)