

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: P474382

Luminaire Tested: **24CZ2-30VHE-HRP-UNV-L830-CD1-U**

Issue Date: 01/28/2021

Test Information

Test Method: LM-79-08
Report Number: P474382
Test Lab: INNOVATION CENTER(G3)
Issue Date: 01/28/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: 24CZ2-30VHE-HRP-UNV-L830-CD1-U
Description: 2'X4' TROFFER LED MODULE, VERY HIGH EFFICIENCY,SMOOTH LENS W/ HRP
INSERT
Light Source: 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2371.9 lumens
Efficiency: N/A
Efficacy: 115.7 lumens/watt
Spacing Criteria (0/90/45): 1.24 / 1.3 / 1.4
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')
CIE Type: Direct

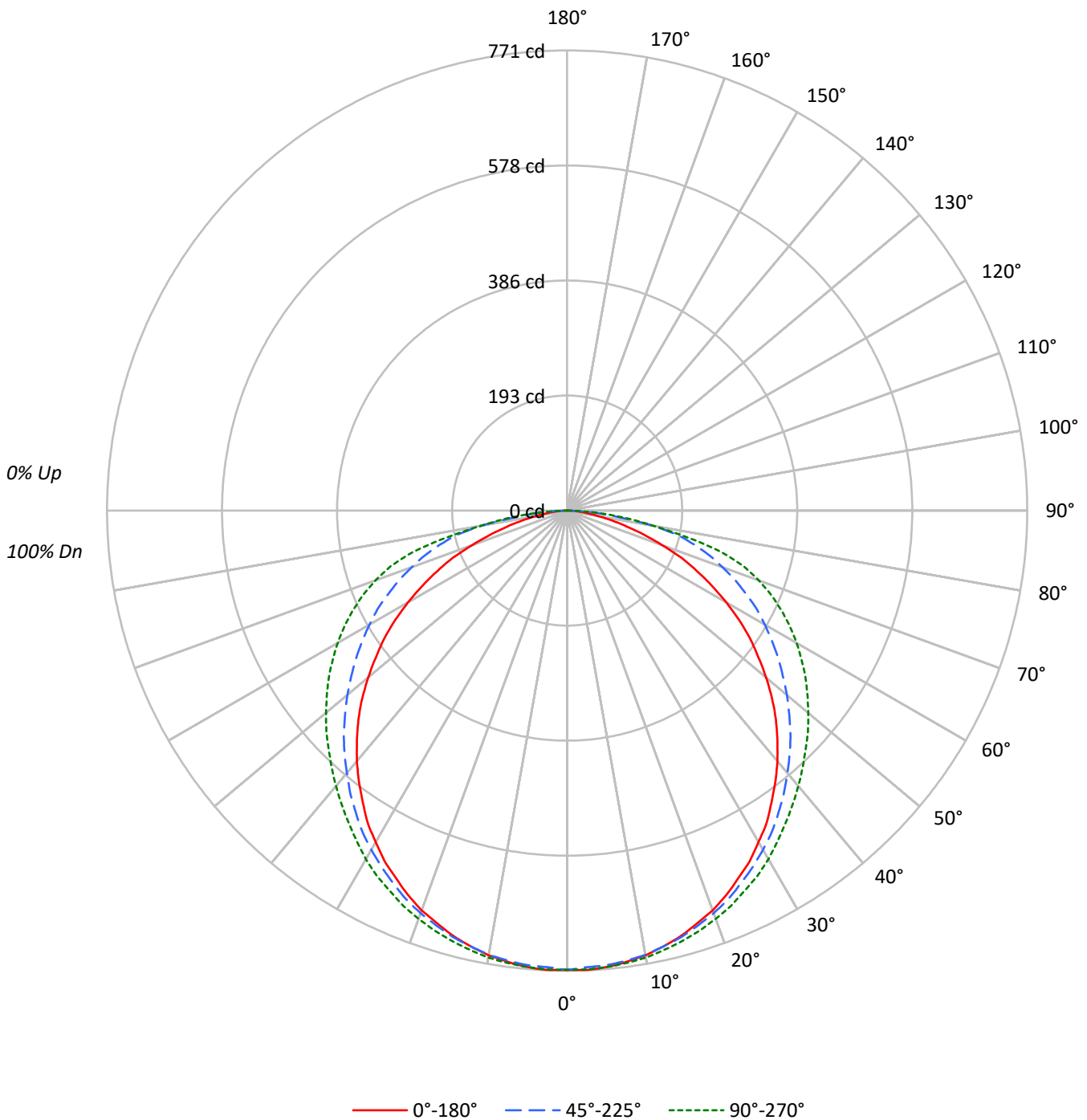
Input Watts (W): 20.5
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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 | 108 | 103 | 98 | 94 | 105 | 101 | 96 | 93 | 96 | 93 | 90 | | 92 | 90 | 87 | | 89 | 86 | 84 | 82 |
| 2 | 98 | 89 | 82 | 76 | 95 | 87 | 80 | 75 | 83 | 78 | 73 | | 80 | 75 | 71 | | 77 | 73 | 70 | 67 |
| 3 | 89 | 78 | 69 | 62 | 86 | 76 | 68 | 62 | 73 | 66 | 61 | | 70 | 64 | 59 | | 68 | 63 | 58 | 56 |
| 4 | 81 | 68 | 59 | 52 | 79 | 67 | 59 | 52 | 65 | 57 | 51 | | 62 | 56 | 50 | | 60 | 54 | 50 | 48 |
| 5 | 74 | 61 | 52 | 45 | 72 | 60 | 51 | 45 | 58 | 50 | 44 | | 56 | 49 | 44 | | 54 | 48 | 43 | 41 |
| 6 | 69 | 55 | 46 | 39 | 67 | 54 | 45 | 39 | 52 | 44 | 38 | | 50 | 43 | 38 | | 49 | 42 | 38 | 36 |
| 7 | 63 | 50 | 41 | 34 | 62 | 49 | 40 | 34 | 47 | 39 | 34 | | 46 | 39 | 34 | | 44 | 38 | 33 | 31 |
| 8 | 59 | 45 | 36 | 30 | 57 | 44 | 36 | 30 | 43 | 36 | 30 | | 42 | 35 | 30 | | 41 | 34 | 30 | 28 |
| 9 | 55 | 41 | 33 | 27 | 54 | 41 | 33 | 27 | 40 | 32 | 27 | | 39 | 32 | 27 | | 38 | 31 | 27 | 25 |
| 10 | 52 | 38 | 30 | 25 | 50 | 38 | 30 | 25 | 37 | 30 | 25 | | 36 | 29 | 24 | | 35 | 29 | 24 | 23 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 1035 | 1035 | 1035 |
| 5° | 1037 | 1033 | 1037 |
| 10° | 1034 | 1032 | 1039 |
| 15° | 1028 | 1031 | 1040 |
| 20° | 1021 | 1028 | 1042 |
| 25° | 1008 | 1023 | 1044 |
| 30° | 997 | 1020 | 1048 |
| 35° | 980 | 1014 | 1049 |
| 40° | 963 | 1008 | 1059 |
| 45° | 941 | 1007 | 1075 |
| 50° | 911 | 1006 | 1104 |
| 55° | 878 | 1013 | 1144 |
| 60° | 828 | 1029 | 1194 |
| 65° | 765 | 1053 | 1261 |
| 70° | 668 | 1090 | 1344 |
| 75° | 542 | 1146 | 1389 |
| 80° | 401 | 1124 | 1124 |
| 85° | 307 | 827 | 934 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 72.9 | 3.1 |
| 10°-20° | 209.3 | 8.8 |
| 20°-30° | 318.7 | 13.4 |
| 30°-40° | 387.0 | 16.3 |
| 40°-50° | 408.8 | 17.2 |
| 50°-60° | 385.8 | 16.3 |
| 60°-70° | 320.8 | 13.5 |
| 70°-80° | 211.0 | 8.9 |
| 80°-90° | 57.5 | 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° | 600.9 | 25.3 |
| 0°-40° | 987.9 | 41.7 |
| 0°-60° | 1782.5 | 75.2 |
| 0°-90° | 2371.9 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 2371.9 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0° | 770 | 770 | 770 | 770 | 770 | |
| 5° | 768 | 768 | 765 | 768 | 768 | 73 |
| 15° | 738 | 739 | 740 | 747 | 747 | 208 |
| 25° | 679 | 683 | 689 | 701 | 703 | 313 |
| 35° | 597 | 604 | 618 | 634 | 638 | 374 |
| 45° | 494 | 504 | 529 | 555 | 565 | 381 |
| 55° | 374 | 390 | 432 | 473 | 488 | 333 |
| 65° | 240 | 268 | 331 | 379 | 396 | 238 |
| 75° | 104 | 152 | 220 | 261 | 267 | 112 |
| 85° | 20 | 44 | 54 | 60 | 60 | 24 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P474382

CATALOG NUMBER: 24CZ2-30VHE-HRP-UNV-L830-CD1-U

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|-------|-------|-------|-------|-------|
| 0° | 769.5 | 769.5 | 769.5 | 769.5 | 769.5 |
| 2.5° | 770.6 | 769.5 | 765.6 | 769.5 | 769.5 |
| 5° | 767.6 | 767.6 | 764.6 | 767.6 | 767.6 |
| 7.5° | 762.6 | 762.6 | 760.6 | 764.6 | 764.6 |
| 10° | 756.6 | 756.6 | 755.7 | 760.6 | 760.6 |
| 12.5° | 747.7 | 748.7 | 747.7 | 753.7 | 753.7 |
| 15° | 737.8 | 738.8 | 739.8 | 746.7 | 746.7 |
| 17.5° | 724.9 | 726.8 | 728.9 | 736.7 | 737.8 |
| 20° | 713.0 | 713.9 | 717.9 | 726.8 | 727.9 |
| 22.5° | 697.1 | 700.0 | 705.0 | 713.9 | 717.0 |
| 25° | 679.2 | 683.1 | 689.1 | 701.1 | 703.0 |
| 27.5° | 662.3 | 665.3 | 673.2 | 686.2 | 690.2 |
| 30° | 641.4 | 646.4 | 656.3 | 669.3 | 674.3 |
| 32.5° | 621.6 | 626.6 | 638.5 | 652.3 | 656.3 |
| 35° | 596.8 | 603.7 | 617.6 | 633.5 | 638.5 |
| 37.5° | 573.0 | 579.9 | 596.8 | 614.6 | 620.7 |
| 40° | 548.1 | 556.0 | 574.0 | 594.8 | 602.7 |
| 42.5° | 521.3 | 532.2 | 552.1 | 574.9 | 583.9 |
| 45° | 494.5 | 504.5 | 529.2 | 555.0 | 565.0 |
| 47.5° | 465.7 | 477.7 | 504.5 | 535.2 | 547.2 |
| 50° | 435.0 | 449.8 | 480.6 | 514.4 | 527.3 |
| 52.5° | 404.2 | 421.0 | 455.8 | 493.5 | 507.4 |
| 55° | 374.3 | 390.2 | 431.9 | 472.7 | 487.6 |
| 57.5° | 341.6 | 361.5 | 407.1 | 450.8 | 465.7 |
| 60° | 307.8 | 329.7 | 382.3 | 427.9 | 443.8 |
| 62.5° | 274.0 | 298.9 | 358.4 | 404.2 | 421.0 |
| 65° | 240.3 | 268.1 | 330.7 | 379.3 | 396.2 |
| 67.5° | 207.5 | 238.3 | 304.8 | 353.5 | 370.4 |
| 70° | 169.8 | 208.5 | 277.0 | 324.7 | 341.6 |
| 72.5° | 135.0 | 179.8 | 250.2 | 294.9 | 309.8 |
| 75° | 104.3 | 152.0 | 220.4 | 261.1 | 267.1 |
| 77.5° | 76.4 | 124.1 | 189.7 | 203.5 | 204.5 |
| 80° | 51.7 | 99.3 | 145.0 | 143.0 | 145.0 |
| 82.5° | 33.7 | 74.5 | 91.3 | 102.3 | 103.2 |
| 85° | 19.9 | 43.7 | 53.6 | 59.6 | 60.5 |
| 87.5° | 9.9 | 14.9 | 18.9 | 19.9 | 21.8 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)