

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: P474167

Luminaire Tested: **24CZ2-60-RDP-UNV-L830-CD1-U**

Issue Date: 01/28/2021

Test Information

Test Method: LM-79-08
Report Number: P474167
Test Lab: INNOVATION CENTER(G3)
Issue Date: 01/28/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: 24CZ2-60-RDP-UNV-L830-CD1-U
Description: 2'X4' TROFFER LED MODULE, SMOOTH LENS W/ RDP INSERT
Light Source: 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3859.3 lumens
Efficiency: N/A
Efficacy: 83.4 lumens/watt
Spacing Criteria (0/90/45): 1.26 / 1.3 / 1.41
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')
CIE Type: Direct

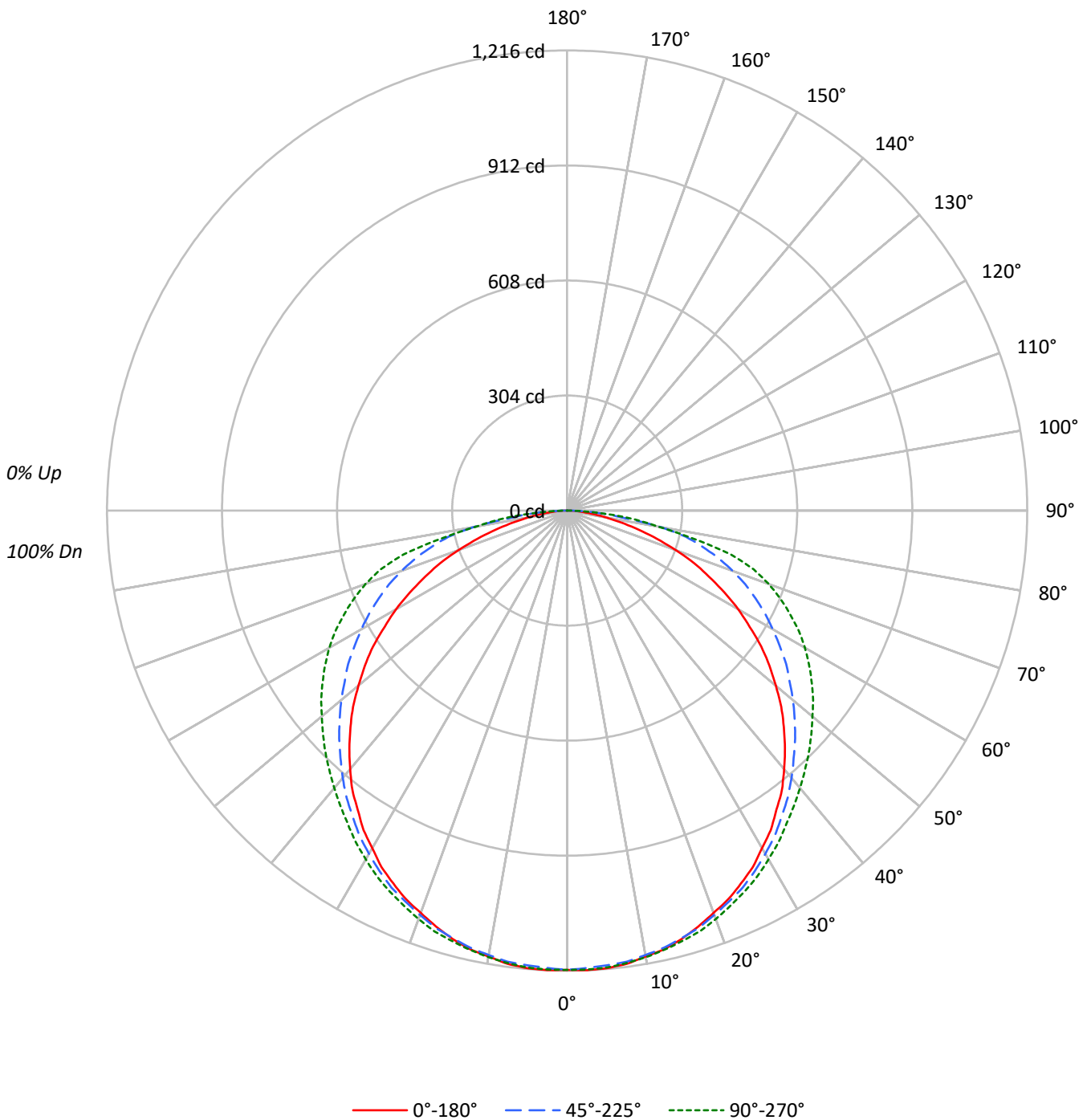
Input Watts (W): 46.3
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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 | 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 | | | | | 100 | | | |
| 1 | 108 | 103 | 98 | 94 | 105 | 100 | 96 | 92 | 96 | 93 | 89 | 92 | 89 | 87 | 88 | 86 | 84 | 82 | | | | | 82 | | | |
| 2 | 97 | 89 | 81 | 75 | 95 | 87 | 80 | 74 | 83 | 77 | 72 | 80 | 75 | 71 | 77 | 73 | 69 | 67 | | | | | 67 | | | |
| 3 | 88 | 77 | 68 | 62 | 86 | 76 | 67 | 61 | 72 | 66 | 60 | 70 | 64 | 59 | 67 | 62 | 58 | 56 | | | | | 56 | | | |
| 4 | 81 | 68 | 59 | 52 | 78 | 67 | 58 | 51 | 64 | 57 | 51 | 62 | 55 | 50 | 59 | 54 | 49 | 47 | | | | | 47 | | | |
| 5 | 74 | 60 | 51 | 44 | 72 | 59 | 51 | 44 | 57 | 49 | 43 | 55 | 48 | 43 | 53 | 47 | 42 | 40 | | | | | 40 | | | |
| 6 | 68 | 54 | 45 | 38 | 66 | 53 | 45 | 38 | 51 | 44 | 38 | 50 | 43 | 37 | 48 | 42 | 37 | 35 | | | | | 35 | | | |
| 7 | 63 | 49 | 40 | 34 | 61 | 48 | 40 | 34 | 47 | 39 | 33 | 45 | 38 | 33 | 44 | 38 | 33 | 31 | | | | | 31 | | | |
| 8 | 59 | 45 | 36 | 30 | 57 | 44 | 36 | 30 | 43 | 35 | 30 | 41 | 34 | 29 | 40 | 34 | 29 | 27 | | | | | 27 | | | |
| 9 | 55 | 41 | 33 | 27 | 53 | 40 | 32 | 27 | 39 | 32 | 27 | 38 | 31 | 26 | 37 | 31 | 26 | 24 | | | | | 24 | | | |
| 10 | 51 | 38 | 30 | 24 | 50 | 37 | 29 | 24 | 36 | 29 | 24 | 35 | 29 | 24 | 34 | 28 | 24 | 22 | | | | | 22 | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 1633 | 1633 | 1633 |
| 5° | 1639 | 1629 | 1637 |
| 10° | 1635 | 1629 | 1637 |
| 15° | 1632 | 1629 | 1640 |
| 20° | 1620 | 1628 | 1645 |
| 25° | 1614 | 1631 | 1648 |
| 30° | 1600 | 1627 | 1654 |
| 35° | 1585 | 1622 | 1660 |
| 40° | 1567 | 1620 | 1681 |
| 45° | 1541 | 1621 | 1719 |
| 50° | 1507 | 1631 | 1771 |
| 55° | 1468 | 1657 | 1850 |
| 60° | 1407 | 1689 | 1952 |
| 65° | 1316 | 1749 | 2072 |
| 70° | 1197 | 1830 | 2229 |
| 75° | 1015 | 1931 | 2329 |
| 80° | 801 | 1943 | 1883 |
| 85° | 591 | 1479 | 1656 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 115.1 | 3.0 |
| 10°-20° | 331.3 | 8.6 |
| 20°-30° | 506.7 | 13.1 |
| 30°-40° | 619.4 | 16.0 |
| 40°-50° | 660.2 | 17.1 |
| 50°-60° | 631.2 | 16.4 |
| 60°-70° | 534.7 | 13.9 |
| 70°-80° | 359.4 | 9.3 |
| 80°-90° | 101.4 | 2.6 |
| 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° | 953.1 | 24.7 |
| 0°-40° | 1572.5 | 40.7 |
| 0°-60° | 2863.9 | 74.2 |
| 0°-90° | 3859.3 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 3859.3 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1214 | 1214 | 1214 | 1214 | 1214 | |
| 5° | 1214 | 1212 | 1206 | 1212 | 1212 | 115 |
| 15° | 1172 | 1172 | 1170 | 1179 | 1177 | 330 |
| 25° | 1087 | 1091 | 1099 | 1108 | 1110 | 501 |
| 35° | 965 | 972 | 988 | 1007 | 1011 | 604 |
| 45° | 810 | 823 | 852 | 888 | 903 | 625 |
| 55° | 626 | 649 | 706 | 762 | 789 | 558 |
| 65° | 414 | 456 | 549 | 622 | 651 | 411 |
| 75° | 195 | 266 | 371 | 435 | 448 | 209 |
| 85° | 38 | 78 | 96 | 103 | 107 | 47 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P474167

CATALOG NUMBER: 24CZ2-60-RDP-UNV-L830-CD1-U

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1213.7 | 1213.7 | 1213.7 | 1213.7 | 1213.7 |
| 2.5° | 1215.6 | 1215.6 | 1209.9 | 1213.7 | 1213.7 |
| 5° | 1213.7 | 1211.8 | 1206.0 | 1211.8 | 1211.8 |
| 7.5° | 1208.0 | 1206.0 | 1202.2 | 1208.0 | 1206.0 |
| 10° | 1196.5 | 1196.5 | 1192.6 | 1198.4 | 1198.4 |
| 12.5° | 1186.9 | 1185.0 | 1183.1 | 1190.7 | 1188.8 |
| 15° | 1171.6 | 1171.6 | 1169.7 | 1179.2 | 1177.3 |
| 17.5° | 1152.4 | 1154.3 | 1156.2 | 1163.9 | 1165.8 |
| 20° | 1131.3 | 1135.2 | 1137.1 | 1148.6 | 1148.6 |
| 22.5° | 1112.2 | 1114.1 | 1117.9 | 1129.4 | 1129.4 |
| 25° | 1087.3 | 1091.1 | 1098.8 | 1108.4 | 1110.3 |
| 27.5° | 1062.4 | 1064.3 | 1073.9 | 1087.3 | 1089.2 |
| 30° | 1029.8 | 1035.6 | 1047.1 | 1062.4 | 1064.3 |
| 32.5° | 1001.1 | 1006.9 | 1020.3 | 1035.6 | 1039.4 |
| 35° | 964.7 | 972.4 | 987.7 | 1006.9 | 1010.7 |
| 37.5° | 932.2 | 937.9 | 957.1 | 978.1 | 983.9 |
| 40° | 892.1 | 903.4 | 922.6 | 947.5 | 957.1 |
| 42.5° | 851.9 | 863.4 | 886.4 | 918.8 | 930.2 |
| 45° | 809.8 | 823.2 | 851.9 | 888.3 | 903.4 |
| 47.5° | 767.6 | 783.0 | 815.5 | 857.7 | 874.9 |
| 50° | 719.8 | 738.9 | 779.1 | 827.0 | 846.2 |
| 52.5° | 673.8 | 696.8 | 740.8 | 794.5 | 819.3 |
| 55° | 625.9 | 648.9 | 706.3 | 761.9 | 788.7 |
| 57.5° | 572.3 | 602.9 | 666.1 | 729.3 | 758.1 |
| 60° | 522.7 | 551.2 | 627.8 | 696.8 | 725.5 |
| 62.5° | 469.0 | 507.4 | 589.5 | 662.3 | 691.0 |
| 65° | 413.5 | 455.6 | 549.3 | 622.1 | 650.8 |
| 67.5° | 363.7 | 409.7 | 509.3 | 581.9 | 610.6 |
| 70° | 304.3 | 361.8 | 465.2 | 537.8 | 566.5 |
| 72.5° | 248.8 | 312.0 | 419.3 | 490.1 | 516.9 |
| 75° | 195.2 | 266.0 | 371.4 | 434.6 | 448.0 |
| 77.5° | 145.6 | 220.1 | 321.6 | 348.4 | 338.8 |
| 80° | 103.4 | 176.2 | 250.7 | 237.3 | 243.0 |
| 82.5° | 67.0 | 134.1 | 155.1 | 176.2 | 181.8 |
| 85° | 38.3 | 78.5 | 95.8 | 103.4 | 107.3 |
| 87.5° | 17.2 | 28.7 | 38.3 | 38.3 | 36.4 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)