

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: P474371

Luminaire Tested: **24CZ2-40HE-HRP-UNV-L830-CD1-U**

Issue Date: 01/28/2021

Test Information

Test Method: LM-79-08
Report Number: P474371
Test Lab: INNOVATION CENTER(G3)
Issue Date: 01/28/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: 24CZ2-40HE-HRP-UNV-L830-CD1-U
Description: 2'X4' TROFFER LED MODULE, 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: 3239.6 lumens
Efficiency: N/A
Efficacy: 105.5 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

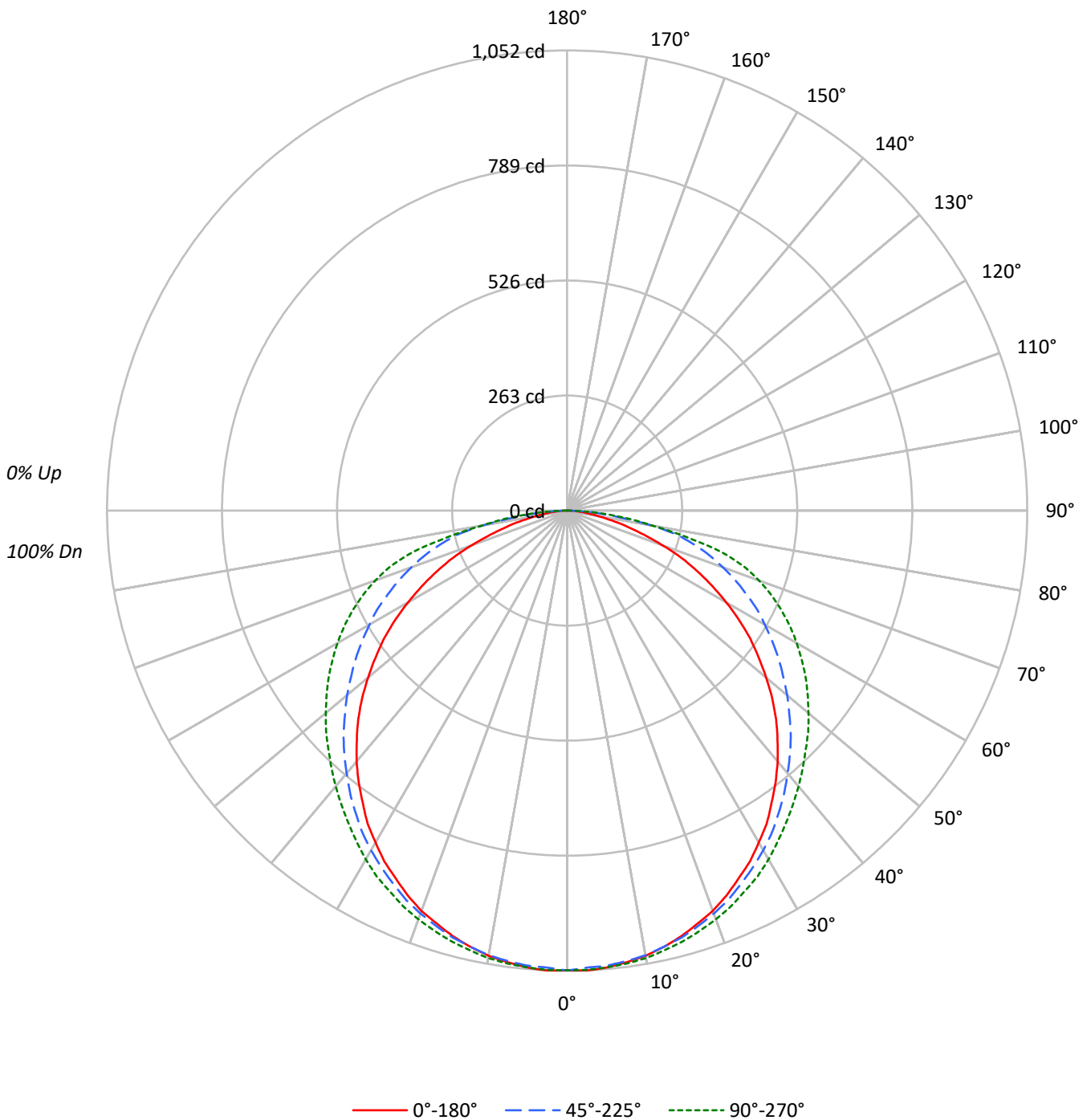
Input Watts (W): 30.7
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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° | 1414 | 1414 | 1414 |
| 5° | 1416 | 1410 | 1416 |
| 10° | 1412 | 1410 | 1419 |
| 15° | 1404 | 1407 | 1421 |
| 20° | 1394 | 1404 | 1424 |
| 25° | 1377 | 1397 | 1425 |
| 30° | 1361 | 1393 | 1431 |
| 35° | 1339 | 1385 | 1432 |
| 40° | 1315 | 1377 | 1446 |
| 45° | 1285 | 1376 | 1468 |
| 50° | 1244 | 1374 | 1508 |
| 55° | 1199 | 1384 | 1562 |
| 60° | 1131 | 1405 | 1631 |
| 65° | 1045 | 1438 | 1723 |
| 70° | 912 | 1488 | 1836 |
| 75° | 740 | 1565 | 1896 |
| 80° | 547 | 1535 | 1535 |
| 85° | 418 | 1130 | 1277 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 99.6 | 3.1 |
| 10°-20° | 285.9 | 8.8 |
| 20°-30° | 435.3 | 13.4 |
| 30°-40° | 528.5 | 16.3 |
| 40°-50° | 558.4 | 17.2 |
| 50°-60° | 526.9 | 16.3 |
| 60°-70° | 438.1 | 13.5 |
| 70°-80° | 288.2 | 8.9 |
| 80°-90° | 78.6 | 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° | 820.8 | 25.3 |
| 0°-40° | 1349.3 | 41.7 |
| 0°-60° | 2434.7 | 75.2 |
| 0°-90° | 3239.6 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 3239.6 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1051 | 1051 | 1051 | 1051 | 1051 | |
| 5° | 1048 | 1048 | 1044 | 1048 | 1048 | 100 |
| 15° | 1008 | 1009 | 1010 | 1020 | 1020 | 284 |
| 25° | 928 | 933 | 941 | 958 | 960 | 428 |
| 35° | 815 | 825 | 844 | 865 | 872 | 510 |
| 45° | 675 | 689 | 723 | 758 | 772 | 520 |
| 55° | 511 | 533 | 590 | 646 | 666 | 455 |
| 65° | 328 | 366 | 452 | 518 | 541 | 324 |
| 75° | 142 | 208 | 301 | 357 | 365 | 153 |
| 85° | 27 | 60 | 73 | 81 | 83 | 33 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P474371

CATALOG NUMBER: 24CZ2-40HE-HRP-UNV-L830-CD1-U

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1051.1 | 1051.1 | 1051.1 | 1051.1 | 1051.1 |
| 2.5° | 1052.5 | 1051.1 | 1045.7 | 1051.1 | 1051.1 |
| 5° | 1048.4 | 1048.4 | 1044.3 | 1048.4 | 1048.4 |
| 7.5° | 1041.6 | 1041.6 | 1038.8 | 1044.3 | 1044.3 |
| 10° | 1033.4 | 1033.4 | 1032.2 | 1038.8 | 1038.8 |
| 12.5° | 1021.3 | 1022.6 | 1021.3 | 1029.4 | 1029.4 |
| 15° | 1007.7 | 1009.1 | 1010.4 | 1019.9 | 1019.9 |
| 17.5° | 990.1 | 992.8 | 995.6 | 1006.3 | 1007.7 |
| 20° | 973.8 | 975.1 | 980.5 | 992.8 | 994.2 |
| 22.5° | 952.1 | 956.2 | 963.0 | 975.1 | 979.3 |
| 25° | 927.6 | 933.0 | 941.3 | 957.5 | 960.2 |
| 27.5° | 904.7 | 908.7 | 919.5 | 937.2 | 942.7 |
| 30° | 876.1 | 882.9 | 896.4 | 914.1 | 920.9 |
| 32.5° | 849.0 | 855.8 | 872.1 | 891.0 | 896.4 |
| 35° | 815.1 | 824.6 | 843.5 | 865.3 | 872.1 |
| 37.5° | 782.6 | 792.0 | 815.1 | 839.5 | 847.7 |
| 40° | 748.6 | 759.5 | 784.0 | 812.4 | 823.2 |
| 42.5° | 712.0 | 726.9 | 754.0 | 785.2 | 797.5 |
| 45° | 675.4 | 689.0 | 722.9 | 758.1 | 771.7 |
| 47.5° | 636.1 | 652.4 | 689.0 | 731.1 | 747.4 |
| 50° | 594.1 | 614.4 | 656.5 | 702.5 | 720.2 |
| 52.5° | 552.1 | 575.0 | 622.5 | 674.0 | 693.1 |
| 55° | 511.3 | 533.0 | 589.9 | 645.6 | 665.9 |
| 57.5° | 466.6 | 493.7 | 556.1 | 615.7 | 636.1 |
| 60° | 420.4 | 450.3 | 522.1 | 584.5 | 606.2 |
| 62.5° | 374.3 | 408.3 | 489.6 | 552.1 | 575.0 |
| 65° | 328.2 | 366.2 | 451.7 | 518.1 | 541.2 |
| 67.5° | 283.4 | 325.4 | 416.3 | 482.9 | 505.8 |
| 70° | 231.9 | 284.8 | 378.3 | 443.5 | 466.6 |
| 72.5° | 184.4 | 245.5 | 341.7 | 402.8 | 423.2 |
| 75° | 142.4 | 207.5 | 301.1 | 356.6 | 364.8 |
| 77.5° | 104.4 | 169.5 | 259.0 | 278.0 | 279.4 |
| 80° | 70.6 | 135.6 | 198.1 | 195.3 | 198.1 |
| 82.5° | 46.1 | 101.8 | 124.7 | 139.8 | 141.0 |
| 85° | 27.1 | 59.7 | 73.2 | 81.4 | 82.7 |
| 87.5° | 13.5 | 20.3 | 25.8 | 27.1 | 29.8 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)