

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: P473813

Luminaire Tested: **24CZ2-40-UNV-L835-CD1-U**

Issue Date: 01/28/2021

Test Information

Test Method: LM-79-08
Report Number: P473813
Test Lab: INNOVATION CENTER(G3)
Issue Date: 01/28/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: 24CZ2-40-UNV-L835-CD1-U
Description: 2'X4' TROFFER LED MODULE, RIBBED LENS
Light Source: 3500K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

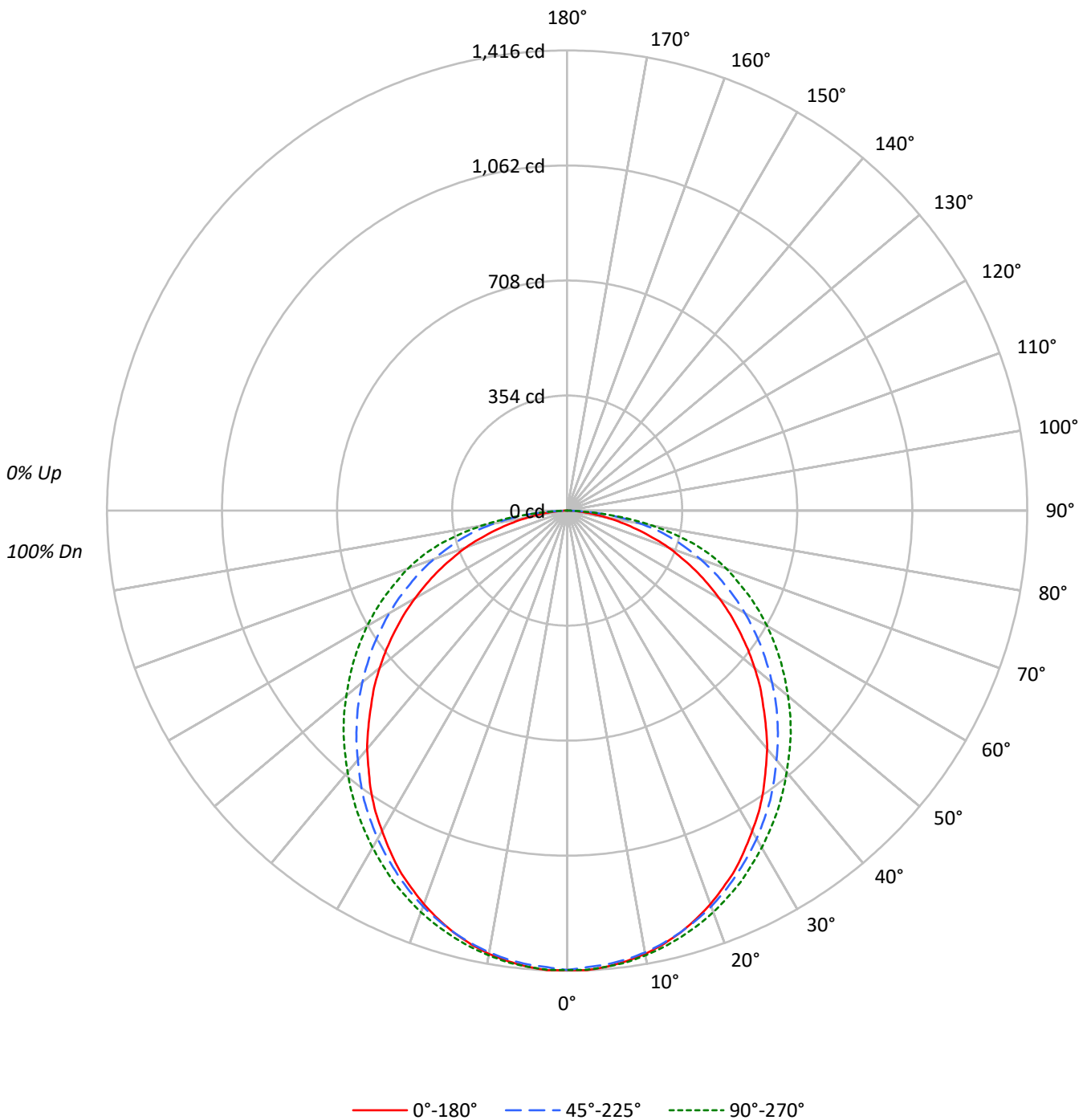
Lumens per Lamp: N/A
Luminaire Lumens: 4091.0 lumens
Efficiency: N/A
Efficacy: 129.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.26 / 1.36
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')
CIE Type: Direct

Input Watts (W): 31.6
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: P473813
CATALOG NUMBER: 24CZ2-40-UNV-L835-CD1-U

Luminous Intensity Polar Plot





TEST NUMBER: P473813

CATALOG NUMBER: 24CZ2-40-UNV-L835-CD1-U

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 | 99 | 95 | 105 | 101 | 97 | 93 | 97 | 93 | 90 | 93 | 90 | 87 | 89 | 87 | 85 | 83 |
| 2 | 98 | 89 | 82 | 76 | 95 | 88 | 81 | 75 | 84 | 78 | 74 | 81 | 76 | 72 | 78 | 74 | 70 | 68 |
| 3 | 89 | 78 | 70 | 63 | 87 | 77 | 69 | 63 | 74 | 67 | 61 | 71 | 65 | 60 | 68 | 63 | 59 | 57 |
| 4 | 82 | 69 | 60 | 53 | 79 | 68 | 59 | 53 | 65 | 58 | 52 | 63 | 57 | 51 | 61 | 55 | 51 | 48 |
| 5 | 75 | 62 | 53 | 46 | 73 | 61 | 52 | 46 | 58 | 51 | 45 | 56 | 50 | 44 | 55 | 49 | 44 | 42 |
| 6 | 69 | 56 | 46 | 40 | 67 | 55 | 46 | 40 | 53 | 45 | 39 | 51 | 44 | 39 | 49 | 43 | 39 | 37 |
| 7 | 64 | 50 | 41 | 35 | 62 | 50 | 41 | 35 | 48 | 40 | 35 | 47 | 40 | 35 | 45 | 39 | 34 | 32 |
| 8 | 60 | 46 | 37 | 31 | 58 | 45 | 37 | 31 | 44 | 36 | 31 | 43 | 36 | 31 | 41 | 35 | 31 | 29 |
| 9 | 56 | 42 | 34 | 28 | 54 | 42 | 34 | 28 | 40 | 33 | 28 | 39 | 33 | 28 | 38 | 32 | 28 | 26 |
| 10 | 52 | 39 | 31 | 26 | 51 | 38 | 31 | 26 | 37 | 30 | 25 | 36 | 30 | 25 | 36 | 30 | 25 | 23 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 1902 | 1902 | 1902 |
| 5° | 1903 | 1893 | 1903 |
| 10° | 1893 | 1886 | 1899 |
| 15° | 1873 | 1873 | 1891 |
| 20° | 1845 | 1857 | 1883 |
| 25° | 1813 | 1834 | 1874 |
| 30° | 1769 | 1812 | 1861 |
| 35° | 1729 | 1789 | 1853 |
| 40° | 1682 | 1760 | 1846 |
| 45° | 1625 | 1742 | 1851 |
| 50° | 1576 | 1722 | 1856 |
| 55° | 1518 | 1710 | 1878 |
| 60° | 1455 | 1702 | 1912 |
| 65° | 1387 | 1696 | 1961 |
| 70° | 1305 | 1713 | 2052 |
| 75° | 1147 | 1749 | 2133 |
| 80° | 958 | 1762 | 2059 |
| 85° | 684 | 1510 | 1530 |



TEST NUMBER: P473813

CATALOG NUMBER: 24CZ2-40-UNV-L835-CD1-U

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 133.6 | 3.3 |
| 10°-20° | 380.6 | 9.3 |
| 20°-30° | 571.0 | 14.0 |
| 30°-40° | 681.8 | 16.7 |
| 40°-50° | 706.2 | 17.3 |
| 50°-60° | 650.1 | 15.9 |
| 60°-70° | 524.4 | 12.8 |
| 70°-80° | 342.7 | 8.4 |
| 80°-90° | 100.5 | 2.5 |
| 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° | 1085.3 | 26.5 |
| 0°-40° | 1767.1 | 43.2 |
| 0°-60° | 3123.4 | 76.3 |
| 0°-90° | 4091.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 4091.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1414 | 1414 | 1414 | 1414 | 1414 | |
| 5° | 1409 | 1408 | 1402 | 1410 | 1409 | 134 |
| 15° | 1345 | 1345 | 1344 | 1358 | 1358 | 379 |
| 25° | 1221 | 1224 | 1235 | 1258 | 1262 | 562 |
| 35° | 1053 | 1062 | 1089 | 1119 | 1128 | 658 |
| 45° | 854 | 875 | 915 | 956 | 973 | 660 |
| 55° | 647 | 675 | 729 | 782 | 800 | 579 |
| 65° | 436 | 465 | 533 | 594 | 616 | 431 |
| 75° | 221 | 262 | 336 | 395 | 410 | 236 |
| 85° | 44 | 77 | 98 | 104 | 99 | 55 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P473813

CATALOG NUMBER: 24CZ2-40-UNV-L835-CD1-U

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1413.7 | 1413.7 | 1413.7 | 1413.7 | 1413.7 |
| 2.5° | 1415.7 | 1413.7 | 1406.4 | 1415.0 | 1414.3 |
| 5° | 1409.0 | 1407.7 | 1401.8 | 1409.7 | 1409.0 |
| 7.5° | 1398.5 | 1397.8 | 1393.2 | 1401.8 | 1401.8 |
| 10° | 1385.3 | 1383.9 | 1380.6 | 1390.5 | 1389.9 |
| 12.5° | 1366.8 | 1366.1 | 1364.1 | 1376.0 | 1375.3 |
| 15° | 1344.9 | 1344.9 | 1344.3 | 1357.5 | 1357.5 |
| 17.5° | 1318.5 | 1319.2 | 1321.8 | 1337.0 | 1337.7 |
| 20° | 1288.8 | 1291.4 | 1296.7 | 1313.9 | 1315.2 |
| 22.5° | 1255.1 | 1260.3 | 1267.6 | 1286.8 | 1288.8 |
| 25° | 1221.4 | 1224.0 | 1235.2 | 1257.7 | 1262.3 |
| 27.5° | 1180.4 | 1187.0 | 1201.5 | 1224.7 | 1229.3 |
| 30° | 1138.7 | 1148.0 | 1166.5 | 1190.3 | 1197.6 |
| 32.5° | 1097.8 | 1105.7 | 1127.5 | 1154.6 | 1163.2 |
| 35° | 1052.8 | 1062.1 | 1089.2 | 1118.9 | 1128.2 |
| 37.5° | 1003.3 | 1017.8 | 1046.2 | 1080.6 | 1090.5 |
| 40° | 957.7 | 970.9 | 1001.9 | 1040.3 | 1050.8 |
| 42.5° | 905.4 | 922.0 | 959.6 | 998.6 | 1011.8 |
| 45° | 853.9 | 875.0 | 915.4 | 956.3 | 972.9 |
| 47.5° | 805.6 | 822.8 | 870.4 | 916.7 | 931.2 |
| 50° | 752.8 | 772.6 | 822.8 | 871.7 | 886.9 |
| 52.5° | 700.6 | 724.4 | 775.2 | 826.8 | 843.3 |
| 55° | 647.0 | 674.8 | 729.0 | 782.5 | 800.4 |
| 57.5° | 595.5 | 623.2 | 679.4 | 736.2 | 754.8 |
| 60° | 540.6 | 570.4 | 632.5 | 687.3 | 710.5 |
| 62.5° | 487.7 | 517.5 | 582.9 | 642.4 | 664.2 |
| 65° | 435.5 | 465.3 | 532.7 | 593.5 | 616.0 |
| 67.5° | 381.3 | 413.7 | 485.8 | 544.6 | 566.4 |
| 70° | 331.8 | 362.8 | 435.5 | 498.3 | 521.5 |
| 72.5° | 274.9 | 311.9 | 386.0 | 448.1 | 469.9 |
| 75° | 220.7 | 262.4 | 336.4 | 394.6 | 410.4 |
| 77.5° | 170.5 | 212.2 | 286.2 | 329.8 | 339.7 |
| 80° | 123.6 | 165.9 | 227.4 | 257.8 | 265.7 |
| 82.5° | 80.0 | 123.6 | 164.6 | 185.1 | 187.7 |
| 85° | 44.3 | 76.7 | 97.8 | 103.8 | 99.1 |
| 87.5° | 15.9 | 29.1 | 28.4 | 23.1 | 18.5 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)