

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: P473835

Luminaire Tested: **24CZ2-45VHE-UNV-L835-CD1-U**

Issue Date: 01/28/2021

Test Information

Test Method: LM-79-08
Report Number: P473835
Test Lab: INNOVATION CENTER(G3)
Issue Date: 01/28/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: 24CZ2-45VHE-UNV-L835-CD1-U
Description: 2'X4' TROFFER LED MODULE, VERY HIGH EFFICIENCY,RIBBED LENS
Light Source: 3500K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

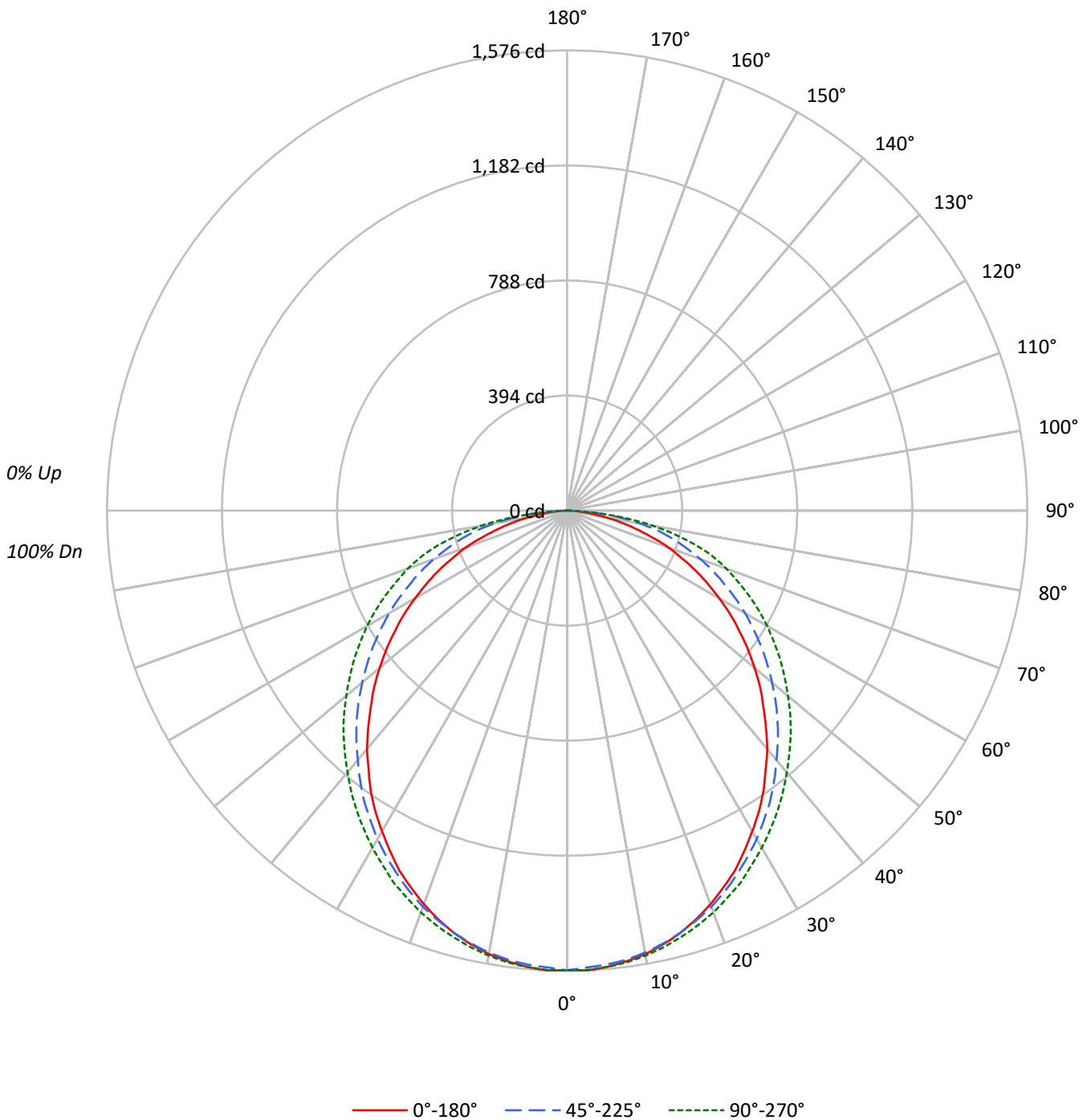
Lumens per Lamp: N/A
Luminaire Lumens: 4554.9 lumens
Efficiency: N/A
Efficacy: 148.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.26 / 1.36
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')
CIE Type: Direct

Input Watts (W): 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 | 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° | 2118 | 2118 | 2118 |
| 5° | 2119 | 2108 | 2119 |
| 10° | 2107 | 2100 | 2114 |
| 15° | 2086 | 2085 | 2105 |
| 20° | 2055 | 2067 | 2097 |
| 25° | 2019 | 2042 | 2087 |
| 30° | 1970 | 2018 | 2072 |
| 35° | 1925 | 1992 | 2063 |
| 40° | 1873 | 1959 | 2055 |
| 45° | 1809 | 1939 | 2061 |
| 50° | 1754 | 1918 | 2067 |
| 55° | 1690 | 1904 | 2090 |
| 60° | 1620 | 1895 | 2129 |
| 65° | 1544 | 1888 | 2183 |
| 70° | 1453 | 1908 | 2284 |
| 75° | 1278 | 1947 | 2376 |
| 80° | 1066 | 1961 | 2292 |
| 85° | 761 | 1681 | 1704 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 148.8 | 3.3 |
| 10°-20° | 423.8 | 9.3 |
| 20°-30° | 635.8 | 14.0 |
| 30°-40° | 759.1 | 16.7 |
| 40°-50° | 786.3 | 17.3 |
| 50°-60° | 723.9 | 15.9 |
| 60°-70° | 583.9 | 12.8 |
| 70°-80° | 381.5 | 8.4 |
| 80°-90° | 111.8 | 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° | 1208.4 | 26.5 |
| 0°-40° | 1967.5 | 43.2 |
| 0°-60° | 3477.7 | 76.3 |
| 0°-90° | 4554.9 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 4554.9 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1574 | 1574 | 1574 | 1574 | 1574 | |
| 5° | 1569 | 1567 | 1561 | 1570 | 1569 | 149 |
| 15° | 1498 | 1498 | 1497 | 1512 | 1512 | 422 |
| 25° | 1360 | 1363 | 1375 | 1400 | 1406 | 625 |
| 35° | 1172 | 1182 | 1213 | 1246 | 1256 | 732 |
| 45° | 951 | 974 | 1019 | 1065 | 1083 | 735 |
| 55° | 720 | 751 | 812 | 871 | 891 | 645 |
| 65° | 485 | 518 | 593 | 661 | 686 | 480 |
| 75° | 246 | 292 | 375 | 439 | 457 | 262 |
| 85° | 49 | 85 | 109 | 116 | 110 | 61 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P473835

CATALOG NUMBER: 24CZ2-45VHE-UNV-L835-CD1-U

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1574.0 | 1574.0 | 1574.0 | 1574.0 | 1574.0 |
| 2.5° | 1576.2 | 1574.0 | 1565.9 | 1575.5 | 1574.7 |
| 5° | 1568.9 | 1567.4 | 1560.8 | 1569.6 | 1568.9 |
| 7.5° | 1557.1 | 1556.4 | 1551.2 | 1560.8 | 1560.8 |
| 10° | 1542.4 | 1540.9 | 1537.2 | 1548.3 | 1547.5 |
| 12.5° | 1521.8 | 1521.0 | 1518.8 | 1532.1 | 1531.3 |
| 15° | 1497.5 | 1497.5 | 1496.7 | 1511.5 | 1511.5 |
| 17.5° | 1468.0 | 1468.8 | 1471.7 | 1488.7 | 1489.4 |
| 20° | 1434.9 | 1437.9 | 1443.8 | 1462.9 | 1464.4 |
| 22.5° | 1397.4 | 1403.3 | 1411.4 | 1432.7 | 1434.9 |
| 25° | 1359.9 | 1362.8 | 1375.3 | 1400.3 | 1405.5 |
| 27.5° | 1314.3 | 1321.6 | 1337.8 | 1363.6 | 1368.7 |
| 30° | 1267.9 | 1278.2 | 1298.8 | 1325.3 | 1333.4 |
| 32.5° | 1222.3 | 1231.1 | 1255.4 | 1285.6 | 1295.1 |
| 35° | 1172.2 | 1182.5 | 1212.7 | 1245.8 | 1256.1 |
| 37.5° | 1117.0 | 1133.2 | 1164.9 | 1203.1 | 1214.2 |
| 40° | 1066.3 | 1081.0 | 1115.6 | 1158.3 | 1170.0 |
| 42.5° | 1008.1 | 1026.5 | 1068.5 | 1111.9 | 1126.6 |
| 45° | 950.7 | 974.3 | 1019.2 | 1064.8 | 1083.2 |
| 47.5° | 897.0 | 916.2 | 969.1 | 1020.6 | 1036.8 |
| 50° | 838.1 | 860.2 | 916.2 | 970.6 | 987.5 |
| 52.5° | 780.0 | 806.5 | 863.2 | 920.6 | 939.0 |
| 55° | 720.4 | 751.3 | 811.7 | 871.3 | 891.1 |
| 57.5° | 663.0 | 693.9 | 756.5 | 819.8 | 840.4 |
| 60° | 601.9 | 635.1 | 704.2 | 765.3 | 791.1 |
| 62.5° | 543.1 | 576.2 | 649.0 | 715.3 | 739.5 |
| 65° | 484.9 | 518.0 | 593.1 | 660.8 | 685.8 |
| 67.5° | 424.6 | 460.7 | 540.9 | 606.4 | 630.6 |
| 70° | 369.4 | 404.0 | 484.9 | 554.8 | 580.6 |
| 72.5° | 306.1 | 347.3 | 429.7 | 498.9 | 523.2 |
| 75° | 245.8 | 292.1 | 374.6 | 439.3 | 457.0 |
| 77.5° | 189.9 | 236.2 | 318.6 | 367.2 | 378.2 |
| 80° | 137.6 | 184.7 | 253.1 | 287.0 | 295.8 |
| 82.5° | 89.0 | 137.6 | 183.2 | 206.0 | 209.0 |
| 85° | 49.3 | 85.4 | 108.9 | 115.5 | 110.4 |
| 87.5° | 17.7 | 32.4 | 31.6 | 25.8 | 20.6 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)