

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: P474035

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

Issue Date: 01/28/2021

Test Information

Test Method: LM-79-08
Report Number: P474035
Test Lab: INNOVATION CENTER(G3)
Issue Date: 01/28/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: 24CZ2-45VHE-S-UNV-L835-CD1-U
Description: 2'X4' TROFFER LED MODULE, VERY HIGH EFFICIENCY,SMOOTH LENS
Light Source: 3500K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4646.1 lumens
Efficiency: N/A
Efficacy: 151.3 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.25 / 1.35
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')
CIE Type: Direct

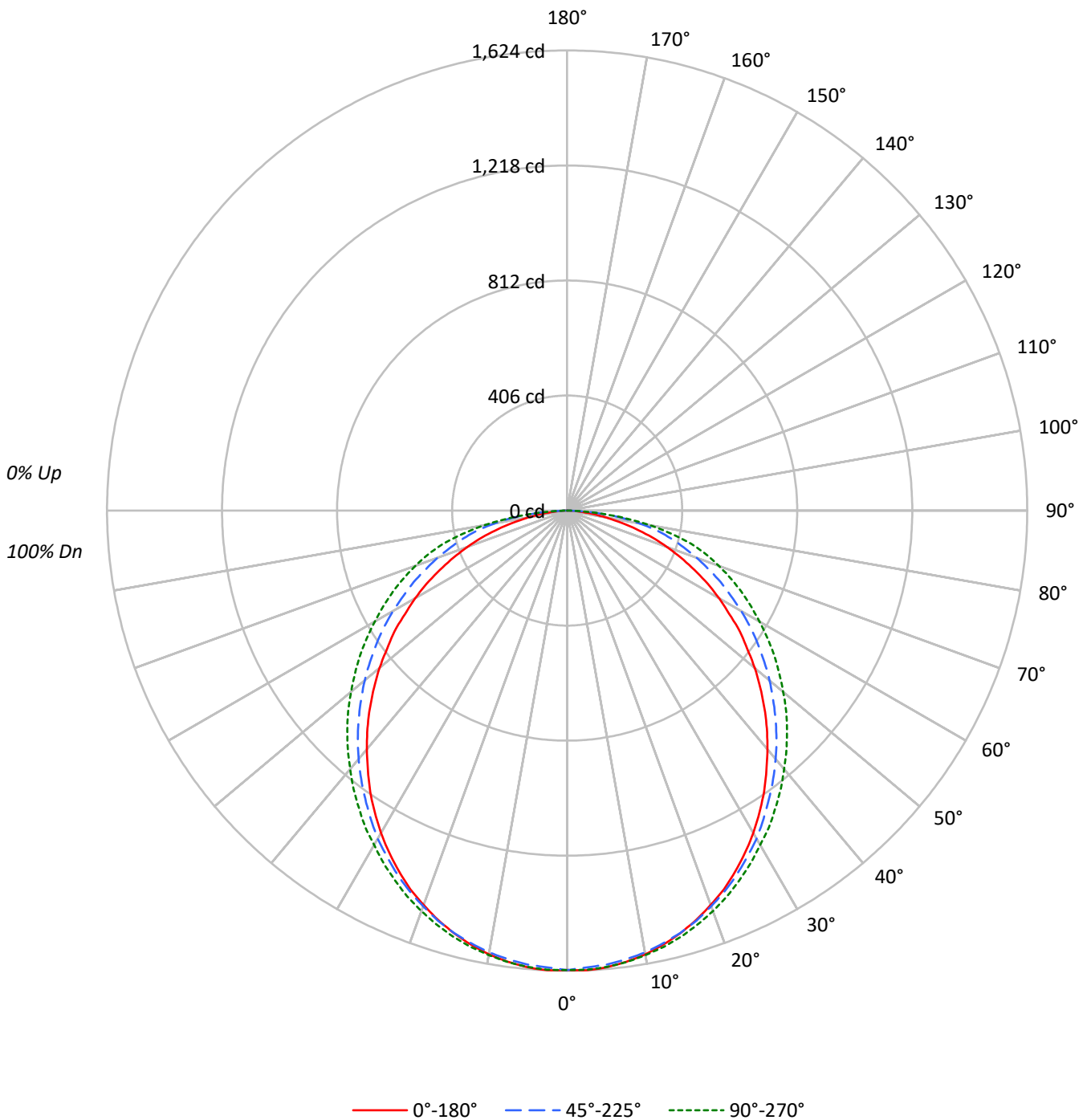
Input Watts (W): 30.7
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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 | 90 | 83 | 77 | 95 | 88 | 81 | 76 | 84 | 79 | 74 | | 81 | 76 | 72 | | 78 | 74 | 71 | 68 |
| 3 | 89 | 78 | 70 | 63 | 87 | 77 | 69 | 63 | 74 | 67 | 62 | | 71 | 65 | 61 | | 68 | 64 | 59 | 57 |
| 4 | 82 | 69 | 60 | 54 | 79 | 68 | 60 | 53 | 66 | 58 | 52 | | 63 | 57 | 52 | | 61 | 55 | 51 | 49 |
| 5 | 75 | 62 | 53 | 46 | 73 | 61 | 52 | 46 | 59 | 51 | 45 | | 57 | 50 | 45 | | 55 | 49 | 44 | 42 |
| 6 | 69 | 56 | 47 | 40 | 67 | 55 | 46 | 40 | 53 | 45 | 40 | | 51 | 44 | 39 | | 50 | 44 | 39 | 37 |
| 7 | 64 | 51 | 42 | 35 | 63 | 50 | 41 | 35 | 48 | 41 | 35 | | 47 | 40 | 35 | | 45 | 39 | 34 | 32 |
| 8 | 60 | 46 | 38 | 32 | 58 | 45 | 37 | 31 | 44 | 37 | 31 | | 43 | 36 | 31 | | 42 | 35 | 31 | 29 |
| 9 | 56 | 42 | 34 | 28 | 54 | 42 | 34 | 28 | 41 | 33 | 28 | | 39 | 33 | 28 | | 38 | 32 | 28 | 26 |
| 10 | 52 | 39 | 31 | 26 | 51 | 39 | 31 | 26 | 38 | 30 | 26 | | 37 | 30 | 25 | | 36 | 30 | 25 | 24 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 2182 | 2182 | 2182 |
| 5° | 2185 | 2172 | 2183 |
| 10° | 2173 | 2164 | 2176 |
| 15° | 2151 | 2149 | 2168 |
| 20° | 2121 | 2128 | 2154 |
| 25° | 2086 | 2104 | 2137 |
| 30° | 2042 | 2077 | 2116 |
| 35° | 1991 | 2041 | 2105 |
| 40° | 1932 | 2011 | 2092 |
| 45° | 1873 | 1979 | 2088 |
| 50° | 1810 | 1952 | 2083 |
| 55° | 1746 | 1928 | 2095 |
| 60° | 1665 | 1910 | 2109 |
| 65° | 1577 | 1903 | 2160 |
| 70° | 1471 | 1912 | 2237 |
| 75° | 1309 | 1968 | 2357 |
| 80° | 1070 | 2011 | 2300 |
| 85° | 753 | 1755 | 1791 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 153.3 | 3.3 |
| 10°-20° | 436.7 | 9.4 |
| 20°-30° | 654.6 | 14.1 |
| 30°-40° | 779.6 | 16.8 |
| 40°-50° | 803.8 | 17.3 |
| 50°-60° | 733.5 | 15.8 |
| 60°-70° | 586.5 | 12.6 |
| 70°-80° | 383.1 | 8.2 |
| 80°-90° | 115.0 | 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° | 1244.5 | 26.8 |
| 0°-40° | 2024.1 | 43.6 |
| 0°-60° | 3561.5 | 76.7 |
| 0°-90° | 4646.1 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 4646.1 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1622 | 1622 | 1622 | 1622 | 1622 | |
| 5° | 1618 | 1615 | 1608 | 1618 | 1616 | 154 |
| 15° | 1544 | 1545 | 1543 | 1556 | 1556 | 435 |
| 25° | 1405 | 1407 | 1417 | 1438 | 1439 | 647 |
| 35° | 1212 | 1220 | 1242 | 1274 | 1281 | 757 |
| 45° | 984 | 1002 | 1040 | 1084 | 1097 | 759 |
| 55° | 744 | 765 | 822 | 876 | 893 | 663 |
| 65° | 495 | 529 | 598 | 656 | 678 | 491 |
| 75° | 252 | 294 | 378 | 440 | 453 | 268 |
| 85° | 49 | 88 | 114 | 116 | 116 | 62 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P474035

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

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1621.7 | 1621.7 | 1621.7 | 1621.7 | 1621.7 |
| 2.5° | 1624.0 | 1621.7 | 1613.3 | 1623.2 | 1621.7 |
| 5° | 1617.9 | 1614.8 | 1608.0 | 1617.9 | 1616.4 |
| 7.5° | 1605.7 | 1604.2 | 1597.3 | 1608.7 | 1607.2 |
| 10° | 1590.4 | 1588.9 | 1583.6 | 1595.0 | 1592.7 |
| 12.5° | 1569.1 | 1568.3 | 1564.5 | 1578.2 | 1576.7 |
| 15° | 1543.9 | 1544.6 | 1543.1 | 1556.1 | 1556.1 |
| 17.5° | 1514.9 | 1514.1 | 1517.2 | 1533.2 | 1531.7 |
| 20° | 1481.3 | 1482.1 | 1485.9 | 1504.2 | 1504.2 |
| 22.5° | 1446.2 | 1445.4 | 1453.8 | 1472.1 | 1473.7 |
| 25° | 1405.0 | 1407.3 | 1417.2 | 1437.8 | 1439.3 |
| 27.5° | 1360.7 | 1364.5 | 1376.7 | 1400.4 | 1402.7 |
| 30° | 1314.2 | 1318.7 | 1337.1 | 1359.2 | 1362.2 |
| 32.5° | 1263.0 | 1272.9 | 1289.7 | 1318.0 | 1325.6 |
| 35° | 1211.9 | 1220.3 | 1242.4 | 1273.7 | 1281.3 |
| 37.5° | 1155.4 | 1169.2 | 1194.3 | 1228.7 | 1238.6 |
| 40° | 1099.7 | 1113.4 | 1144.7 | 1180.6 | 1191.3 |
| 42.5° | 1043.2 | 1057.7 | 1093.6 | 1134.1 | 1145.5 |
| 45° | 984.5 | 1002.0 | 1040.2 | 1083.7 | 1097.4 |
| 47.5° | 924.2 | 944.8 | 986.0 | 1033.3 | 1048.6 |
| 50° | 864.7 | 885.3 | 932.6 | 981.4 | 995.2 |
| 52.5° | 800.6 | 826.5 | 876.9 | 929.5 | 943.3 |
| 55° | 744.1 | 765.4 | 821.9 | 876.1 | 892.9 |
| 57.5° | 677.7 | 706.7 | 767.0 | 821.9 | 837.9 |
| 60° | 618.9 | 645.6 | 709.7 | 765.4 | 783.8 |
| 62.5° | 559.4 | 586.9 | 651.0 | 714.3 | 731.1 |
| 65° | 495.3 | 528.9 | 597.6 | 656.3 | 678.4 |
| 67.5° | 434.2 | 469.3 | 539.6 | 602.1 | 625.0 |
| 70° | 373.9 | 409.8 | 486.1 | 550.2 | 568.6 |
| 72.5° | 314.4 | 351.8 | 431.2 | 493.8 | 515.1 |
| 75° | 251.8 | 293.8 | 378.5 | 439.6 | 453.3 |
| 77.5° | 193.1 | 239.6 | 325.1 | 366.3 | 376.2 |
| 80° | 138.1 | 189.3 | 259.5 | 289.2 | 296.9 |
| 82.5° | 90.8 | 140.4 | 193.8 | 209.9 | 207.6 |
| 85° | 48.8 | 87.8 | 113.7 | 116.0 | 116.0 |
| 87.5° | 19.1 | 35.1 | 35.9 | 27.5 | 25.9 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)