

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: P474427

Luminaire Tested: **24CZ2-70HE-HRP-UNV-L835-CD1-U**

Issue Date: 01/28/2021

**Test Information**

Test Method: LM-79-08  
Report Number: P474427  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 01/28/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: 24CZ2-70HE-HRP-UNV-L835-CD1-U  
Description: 2'X4' TROFFER LED MODULE, HIGH EFFICIENCY,SMOOTH LENS W/ HRP INSERT  
Light Source: 3500K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5847.4 lumens  
Efficiency: N/A  
Efficacy: 118.6 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

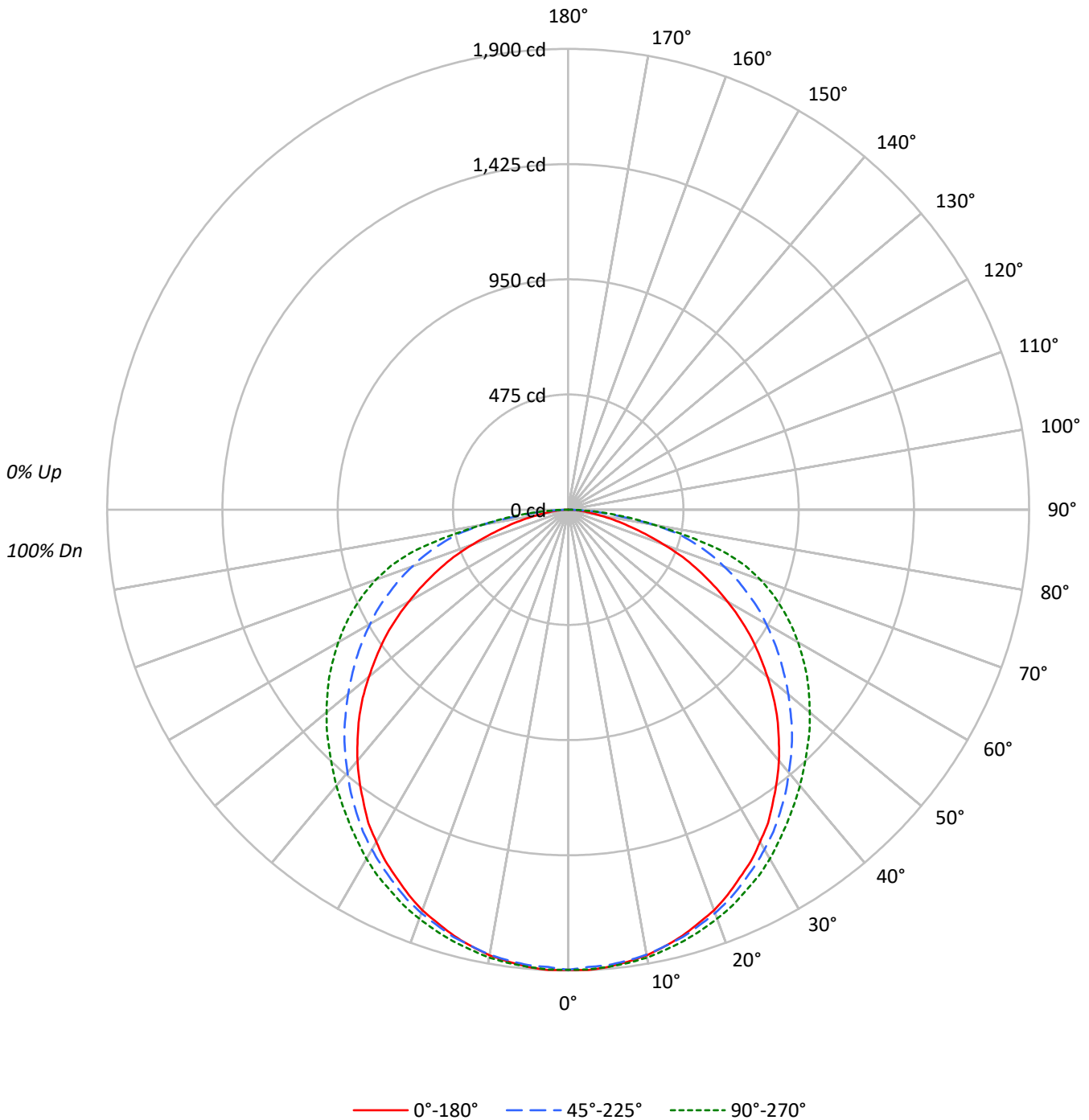
Input Watts (W): 49.3  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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  | 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°  | 2553 | 2553 | 2553 |
| 5°  | 2556 | 2546 | 2556 |
| 10° | 2548 | 2545 | 2562 |
| 15° | 2534 | 2540 | 2564 |
| 20° | 2517 | 2534 | 2569 |
| 25° | 2486 | 2522 | 2573 |
| 30° | 2457 | 2514 | 2583 |
| 35° | 2417 | 2501 | 2586 |
| 40° | 2373 | 2485 | 2610 |
| 45° | 2320 | 2483 | 2650 |
| 50° | 2245 | 2480 | 2721 |
| 55° | 2165 | 2498 | 2820 |
| 60° | 2042 | 2536 | 2944 |
| 65° | 1886 | 2596 | 3110 |
| 70° | 1647 | 2686 | 3313 |
| 75° | 1336 | 2825 | 3423 |
| 80° | 987  | 2770 | 2770 |
| 85° | 756  | 2041 | 2303 |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 179.7  | 3.1       |
| 10°-20°   | 516.1  | 8.8       |
| 20°-30°   | 785.7  | 13.4      |
| 30°-40°   | 954.0  | 16.3      |
| 40°-50°   | 1007.9 | 17.2      |
| 50°-60°   | 951.1  | 16.3      |
| 60°-70°   | 790.8  | 13.5      |
| 70°-80°   | 520.3  | 8.9       |
| 80°-90°   | 141.8  | 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°    | 1481.5 | 25.3      |
| 0°-40°    | 2435.5 | 41.7      |
| 0°-60°    | 4394.5 | 75.2      |
| 0°-90°    | 5847.4 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 5847.4 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1897 | 1897  | 1897 | 1897  | 1897 |      |
| 5°  | 1892 | 1892  | 1885 | 1892  | 1892 | 180  |
| 15° | 1819 | 1821  | 1824 | 1841  | 1841 | 513  |
| 25° | 1674 | 1684  | 1699 | 1728  | 1733 | 772  |
| 35° | 1471 | 1488  | 1523 | 1562  | 1574 | 921  |
| 45° | 1219 | 1244  | 1305 | 1368  | 1393 | 939  |
| 55° | 923  | 962   | 1065 | 1165  | 1202 | 822  |
| 65° | 592  | 661   | 815  | 935   | 977  | 586  |
| 75° | 257  | 375   | 544  | 644   | 658  | 277  |
| 85° | 49   | 108   | 132  | 147   | 149  | 60   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1897.2 | 1897.2 | 1897.2 | 1897.2 | 1897.2 |
| 2.5°  | 1899.7 | 1897.2 | 1887.4 | 1897.2 | 1897.2 |
| 5°    | 1892.4 | 1892.4 | 1884.9 | 1892.4 | 1892.4 |
| 7.5°  | 1880.1 | 1880.1 | 1875.1 | 1884.9 | 1884.9 |
| 10°   | 1865.3 | 1865.3 | 1863.0 | 1875.1 | 1875.1 |
| 12.5° | 1843.4 | 1845.7 | 1843.4 | 1858.0 | 1858.0 |
| 15°   | 1818.8 | 1821.3 | 1823.8 | 1840.9 | 1840.9 |
| 17.5° | 1787.1 | 1791.9 | 1796.9 | 1816.3 | 1818.8 |
| 20°   | 1757.7 | 1760.0 | 1769.8 | 1791.9 | 1794.4 |
| 22.5° | 1718.5 | 1725.8 | 1738.1 | 1760.0 | 1767.5 |
| 25°   | 1674.3 | 1684.1 | 1699.0 | 1728.3 | 1733.1 |
| 27.5° | 1632.9 | 1640.2 | 1659.8 | 1691.7 | 1701.5 |
| 30°   | 1581.4 | 1593.7 | 1618.0 | 1650.0 | 1662.3 |
| 32.5° | 1532.4 | 1544.7 | 1574.1 | 1608.2 | 1618.0 |
| 35°   | 1471.3 | 1488.4 | 1522.6 | 1561.8 | 1574.1 |
| 37.5° | 1412.5 | 1429.6 | 1471.3 | 1515.3 | 1530.1 |
| 40°   | 1351.2 | 1370.8 | 1415.0 | 1466.3 | 1485.9 |
| 42.5° | 1285.1 | 1312.0 | 1361.0 | 1417.3 | 1439.4 |
| 45°   | 1219.1 | 1243.7 | 1304.7 | 1368.3 | 1392.9 |
| 47.5° | 1148.2 | 1177.6 | 1243.7 | 1319.6 | 1349.0 |
| 50°   | 1072.3 | 1109.0 | 1184.9 | 1268.1 | 1300.0 |
| 52.5° | 996.5  | 1037.9 | 1123.6 | 1216.6 | 1251.0 |
| 55°   | 922.8  | 962.0  | 1064.8 | 1165.3 | 1202.0 |
| 57.5° | 842.2  | 891.2  | 1003.7 | 1111.3 | 1148.2 |
| 60°   | 758.8  | 812.8  | 942.4  | 1055.0 | 1094.2 |
| 62.5° | 675.6  | 736.9  | 883.6  | 996.5  | 1037.9 |
| 65°   | 592.4  | 661.0  | 815.3  | 935.2  | 976.9  |
| 67.5° | 511.5  | 587.4  | 751.5  | 871.6  | 913.0  |
| 70°   | 418.6  | 514.1  | 682.9  | 800.5  | 842.2  |
| 72.5° | 332.9  | 443.2  | 616.8  | 727.1  | 763.8  |
| 75°   | 257.0  | 374.6  | 543.5  | 643.7  | 658.5  |
| 77.5° | 188.4  | 306.0  | 467.6  | 501.7  | 504.3  |
| 80°   | 127.4  | 244.7  | 357.5  | 352.5  | 357.5  |
| 82.5° | 83.2   | 183.7  | 225.1  | 252.3  | 254.5  |
| 85°   | 49.0   | 107.8  | 132.2  | 147.0  | 149.2  |
| 87.5° | 24.4   | 36.7   | 46.5   | 49.0   | 53.8   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)