

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: P184174

Luminaire Tested: **24FR-65-HP-UNV-L830-CD1-U**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P184174  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P27148)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: 24FR-65-HP-UNV-L830-CD1-U  
Description: METALUX 2X4 FR TROFFER LED HIGH EFFICIENCY FIXTURE  
  
Light Source: EATON LED 3000K  
Ballast/Driver: OSRAM ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6341.7 lumens  
Efficiency: N/A  
Efficacy: 117.9 lumens/watt  
Spacing Criteria (0/90/45): 1.19 / 1.22 / 1.32  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct

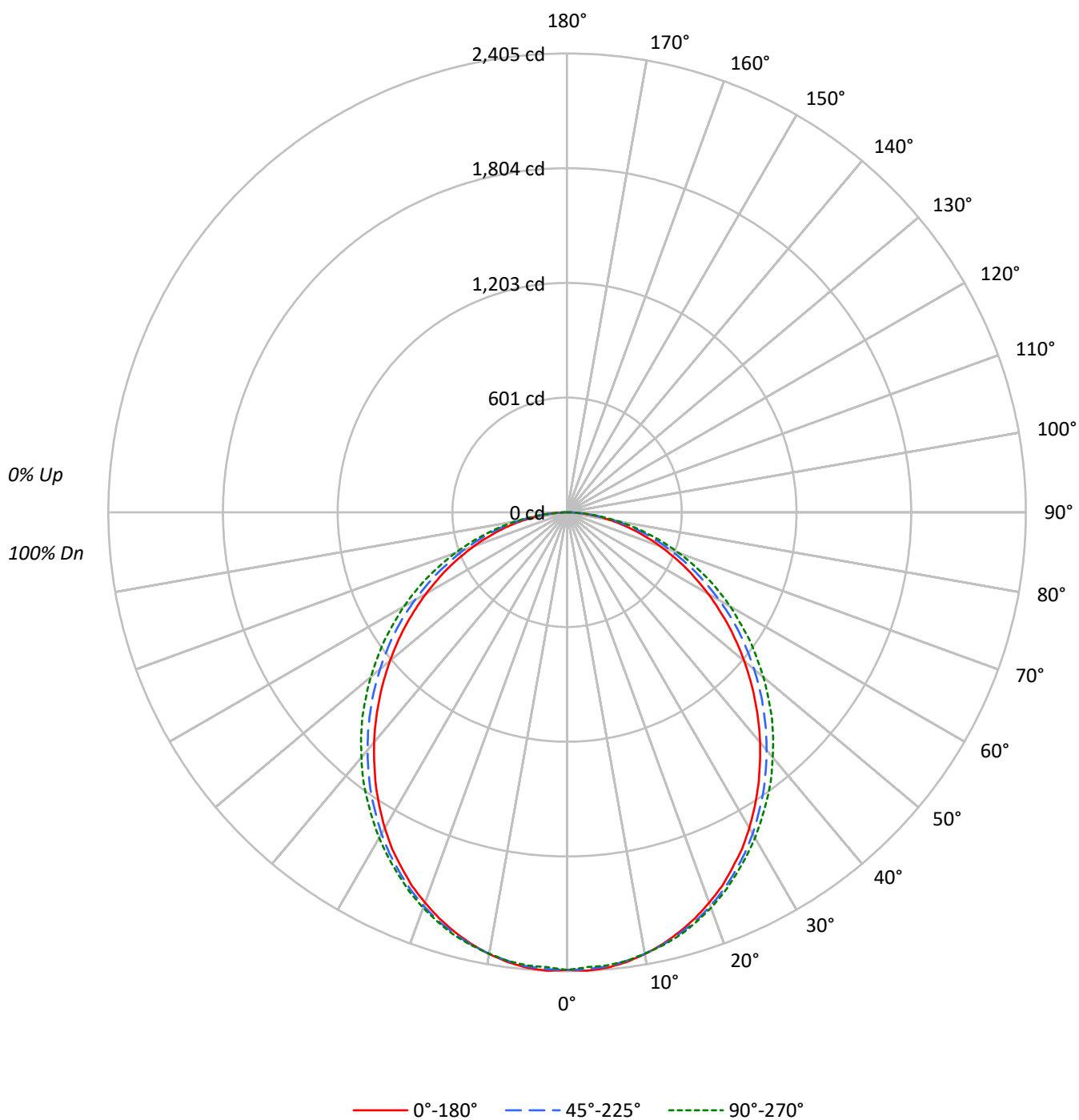
Input Watts (W): 53.8  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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 |
| RW  | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30 | 10 |
| RCR |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |    |    |
| 1   | 109 | 104 | 100 | 96  | 106 | 102 | 98  | 94  | 98  | 94  | 91  | 94  | 91  | 89  | 90  | 88  | 86  | 84  |    |    |
| 2   | 99  | 91  | 84  | 78  | 96  | 89  | 83  | 77  | 85  | 80  | 76  | 82  | 78  | 74  | 79  | 75  | 72  | 70  |    |    |
| 3   | 90  | 80  | 72  | 65  | 88  | 78  | 71  | 65  | 75  | 69  | 64  | 73  | 67  | 63  | 70  | 65  | 61  | 59  |    |    |
| 4   | 83  | 71  | 62  | 56  | 81  | 70  | 61  | 55  | 67  | 60  | 54  | 65  | 59  | 54  | 63  | 57  | 53  | 51  |    |    |
| 5   | 76  | 64  | 55  | 48  | 74  | 62  | 54  | 48  | 60  | 53  | 47  | 58  | 52  | 47  | 56  | 51  | 46  | 44  |    |    |
| 6   | 71  | 57  | 48  | 42  | 69  | 56  | 48  | 42  | 55  | 47  | 41  | 53  | 46  | 41  | 51  | 45  | 41  | 39  |    |    |
| 7   | 65  | 52  | 43  | 37  | 64  | 51  | 43  | 37  | 50  | 42  | 37  | 48  | 42  | 37  | 47  | 41  | 36  | 34  |    |    |
| 8   | 61  | 48  | 39  | 33  | 59  | 47  | 39  | 33  | 46  | 38  | 33  | 44  | 38  | 33  | 43  | 37  | 33  | 31  |    |    |
| 9   | 57  | 44  | 36  | 30  | 56  | 43  | 35  | 30  | 42  | 35  | 30  | 41  | 34  | 30  | 40  | 34  | 29  | 28  |    |    |
| 10  | 53  | 40  | 32  | 27  | 52  | 40  | 32  | 27  | 39  | 32  | 27  | 38  | 31  | 27  | 37  | 31  | 27  | 25  |    |    |

**AVERAGE LUMINANCE (cd/sqm):**

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 3227 | 3227 | 3227 |
| 5°  | 3237 | 3228 | 3220 |
| 10° | 3212 | 3209 | 3209 |
| 15° | 3171 | 3182 | 3194 |
| 20° | 3117 | 3144 | 3159 |
| 25° | 3048 | 3088 | 3109 |
| 30° | 2968 | 3023 | 3061 |
| 35° | 2870 | 2944 | 3006 |
| 40° | 2764 | 2858 | 2945 |
| 45° | 2652 | 2770 | 2888 |
| 50° | 2536 | 2679 | 2813 |
| 55° | 2420 | 2590 | 2740 |
| 60° | 2298 | 2482 | 2659 |
| 65° | 2179 | 2370 | 2567 |
| 70° | 2042 | 2261 | 2456 |
| 75° | 1892 | 2139 | 2311 |
| 80° | 1730 | 1987 | 2115 |
| 85° | 1564 | 1692 | 1692 |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 226.5  | 3.6       |
| 10°-20°   | 643.4  | 10.1      |
| 20°-30°   | 955.1  | 15.1      |
| 30°-40°   | 1117.7 | 17.6      |
| 40°-50°   | 1121.8 | 17.7      |
| 50°-60°   | 982.6  | 15.5      |
| 60°-70°   | 737.6  | 11.6      |
| 70°-80°   | 433.4  | 6.8       |
| 80°-90°   | 123.6  | 1.9       |
| 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°    | 1824.9 | 28.8      |
| 0°-40°    | 2942.6 | 46.4      |
| 0°-60°    | 5047.1 | 79.6      |
| 0°-90°    | 6341.7 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 6341.7 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 2398 | 2398  | 2398 | 2398  | 2398 |      |
| 5°  | 2396 | 2380  | 2390 | 2386  | 2384 | 227  |
| 15° | 2276 | 2268  | 2285 | 2291  | 2293 | 642  |
| 25° | 2053 | 2053  | 2080 | 2086  | 2094 | 946  |
| 35° | 1747 | 1753  | 1793 | 1815  | 1830 | 1092 |
| 45° | 1394 | 1410  | 1456 | 1495  | 1518 | 1075 |
| 55° | 1032 | 1050  | 1104 | 1143  | 1168 | 922  |
| 65° | 684  | 703   | 744  | 784   | 806  | 677  |
| 75° | 364  | 385   | 412  | 432   | 444  | 387  |
| 85° | 101  | 108   | 110  | 110   | 110  | 114  |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 2398.5 | 2398.5 | 2398.5 | 2398.5 | 2398.5 |
| 2.5°  | 2404.7 | 2390.2 | 2396.4 | 2394.3 | 2386.1 |
| 5°    | 2396.4 | 2379.9 | 2390.2 | 2386.1 | 2384.0 |
| 7.5°  | 2377.8 | 2361.2 | 2371.6 | 2371.6 | 2371.6 |
| 10°   | 2350.9 | 2338.5 | 2348.8 | 2348.8 | 2348.8 |
| 12.5° | 2317.8 | 2307.5 | 2322.0 | 2324.0 | 2324.0 |
| 15°   | 2276.5 | 2268.2 | 2284.7 | 2290.9 | 2293.0 |
| 17.5° | 2231.0 | 2224.8 | 2245.5 | 2251.7 | 2251.7 |
| 20°   | 2177.2 | 2173.1 | 2195.8 | 2202.0 | 2206.2 |
| 22.5° | 2121.4 | 2115.2 | 2142.1 | 2146.2 | 2154.5 |
| 25°   | 2053.2 | 2053.2 | 2080.0 | 2086.3 | 2094.5 |
| 27.5° | 1987.0 | 1984.9 | 2016.0 | 2026.3 | 2034.6 |
| 30°   | 1910.5 | 1910.5 | 1945.7 | 1960.1 | 1970.5 |
| 32.5° | 1829.9 | 1836.1 | 1869.1 | 1887.8 | 1900.2 |
| 35°   | 1747.2 | 1753.4 | 1792.6 | 1815.4 | 1829.9 |
| 37.5° | 1660.3 | 1670.7 | 1709.9 | 1738.9 | 1757.5 |
| 40°   | 1573.5 | 1587.9 | 1627.2 | 1660.3 | 1676.9 |
| 42.5° | 1484.6 | 1497.0 | 1542.5 | 1579.7 | 1598.3 |
| 45°   | 1393.6 | 1410.1 | 1455.6 | 1494.9 | 1517.6 |
| 47.5° | 1302.6 | 1323.3 | 1368.8 | 1412.2 | 1428.7 |
| 50°   | 1211.6 | 1230.2 | 1279.9 | 1323.3 | 1344.0 |
| 52.5° | 1120.7 | 1139.3 | 1191.0 | 1232.3 | 1253.0 |
| 55°   | 1031.8 | 1050.4 | 1104.1 | 1143.4 | 1168.2 |
| 57.5° | 940.8  | 961.5  | 1013.1 | 1054.5 | 1073.1 |
| 60°   | 853.9  | 872.5  | 922.2  | 963.5  | 988.3  |
| 62.5° | 767.1  | 787.8  | 831.2  | 874.6  | 897.4  |
| 65°   | 684.4  | 703.0  | 744.4  | 783.6  | 806.4  |
| 67.5° | 599.6  | 622.4  | 657.5  | 696.8  | 713.3  |
| 70°   | 519.0  | 543.8  | 574.8  | 607.9  | 624.4  |
| 72.5° | 440.4  | 463.2  | 492.1  | 519.0  | 533.5  |
| 75°   | 363.9  | 384.6  | 411.5  | 432.1  | 444.5  |
| 77.5° | 291.5  | 314.3  | 332.9  | 351.5  | 357.7  |
| 80°   | 223.3  | 241.9  | 256.4  | 268.8  | 272.9  |
| 82.5° | 161.3  | 173.7  | 179.9  | 190.2  | 192.3  |
| 85°   | 101.3  | 107.5  | 109.6  | 109.6  | 109.6  |
| 87.5° | 43.4   | 45.5   | 41.4   | 33.1   | 31.0   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)