

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: P474077

Luminaire Tested: **24CZ2-70HE-S-UNV-L840-CD1-U**

Issue Date: 01/28/2021

Test Information

Test Method: LM-79-08
Report Number: P474077
Test Lab: INNOVATION CENTER(G3)
Issue Date: 01/28/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: 24CZ2-70HE-S-UNV-L840-CD1-U
Description: 2'X4' TROFFER LED MODULE, HIGH EFFICIENCY,SMOOTH LENS
Light Source: 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

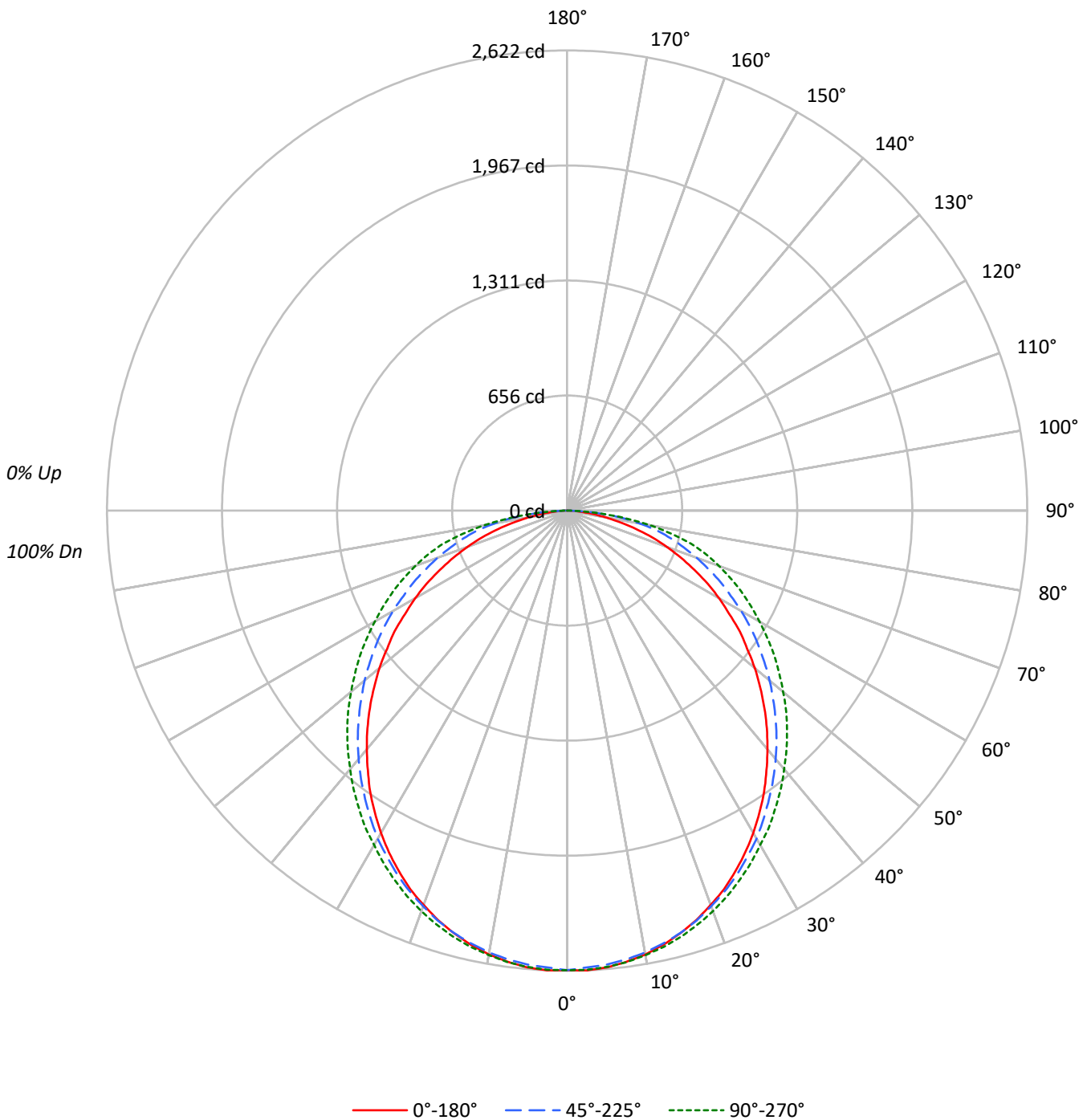
Lumens per Lamp: N/A
Luminaire Lumens: 7502.3 lumens
Efficiency: N/A
Efficacy: 152.2 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.25 / 1.35
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')
CIE Type: Direct

Input Watts (W): 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 | 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° | 3523 | 3523 | 3523 |
| 5° | 3529 | 3507 | 3525 |
| 10° | 3509 | 3493 | 3514 |
| 15° | 3472 | 3471 | 3500 |
| 20° | 3425 | 3435 | 3478 |
| 25° | 3368 | 3397 | 3450 |
| 30° | 3297 | 3354 | 3418 |
| 35° | 3214 | 3295 | 3398 |
| 40° | 3119 | 3247 | 3379 |
| 45° | 3025 | 3196 | 3372 |
| 50° | 2923 | 3152 | 3364 |
| 55° | 2818 | 3113 | 3382 |
| 60° | 2689 | 3084 | 3406 |
| 65° | 2546 | 3072 | 3488 |
| 70° | 2375 | 3088 | 3612 |
| 75° | 2114 | 3177 | 3805 |
| 80° | 1728 | 3247 | 3715 |
| 85° | 1218 | 2834 | 2891 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 247.6 | 3.3 |
| 10°-20° | 705.1 | 9.4 |
| 20°-30° | 1056.9 | 14.1 |
| 30°-40° | 1258.8 | 16.8 |
| 40°-50° | 1298.0 | 17.3 |
| 50°-60° | 1184.4 | 15.8 |
| 60°-70° | 947.1 | 12.6 |
| 70°-80° | 618.6 | 8.2 |
| 80°-90° | 185.7 | 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° | 2009.6 | 26.8 |
| 0°-40° | 3268.5 | 43.6 |
| 0°-60° | 5750.8 | 76.7 |
| 0°-90° | 7502.3 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 7502.3 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2619 | 2619 | 2619 | 2619 | 2619 | |
| 5° | 2612 | 2608 | 2596 | 2612 | 2610 | 248 |
| 15° | 2493 | 2494 | 2492 | 2513 | 2513 | 703 |
| 25° | 2269 | 2272 | 2288 | 2322 | 2324 | 1044 |
| 35° | 1957 | 1970 | 2006 | 2057 | 2069 | 1222 |
| 45° | 1590 | 1618 | 1680 | 1750 | 1772 | 1226 |
| 55° | 1202 | 1236 | 1327 | 1415 | 1442 | 1070 |
| 65° | 800 | 854 | 965 | 1060 | 1096 | 793 |
| 75° | 407 | 474 | 611 | 710 | 732 | 432 |
| 85° | 79 | 142 | 184 | 187 | 187 | 100 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P474077

CATALOG NUMBER: 24CZ2-70HE-S-UNV-L840-CD1-U

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2618.6 | 2618.6 | 2618.6 | 2618.6 | 2618.6 |
| 2.5° | 2622.3 | 2618.6 | 2605.1 | 2621.1 | 2618.6 |
| 5° | 2612.5 | 2607.5 | 2596.5 | 2612.5 | 2610.0 |
| 7.5° | 2592.8 | 2590.3 | 2579.2 | 2597.7 | 2595.2 |
| 10° | 2568.1 | 2565.6 | 2557.0 | 2575.5 | 2571.8 |
| 12.5° | 2533.6 | 2532.4 | 2526.2 | 2548.4 | 2545.9 |
| 15° | 2492.9 | 2494.2 | 2491.7 | 2512.7 | 2512.7 |
| 17.5° | 2446.1 | 2444.9 | 2449.8 | 2475.7 | 2473.2 |
| 20° | 2391.9 | 2393.1 | 2399.3 | 2428.9 | 2428.9 |
| 22.5° | 2335.2 | 2334.0 | 2347.5 | 2377.1 | 2379.6 |
| 25° | 2268.7 | 2272.4 | 2288.4 | 2321.7 | 2324.1 |
| 27.5° | 2197.2 | 2203.4 | 2223.1 | 2261.3 | 2265.0 |
| 30° | 2122.0 | 2129.4 | 2159.0 | 2194.7 | 2199.7 |
| 32.5° | 2039.5 | 2055.5 | 2082.6 | 2128.2 | 2140.5 |
| 35° | 1956.9 | 1970.4 | 2006.2 | 2056.7 | 2069.0 |
| 37.5° | 1865.7 | 1887.9 | 1928.6 | 1984.0 | 2000.0 |
| 40° | 1775.7 | 1797.9 | 1848.5 | 1906.4 | 1923.6 |
| 42.5° | 1684.6 | 1708.0 | 1765.9 | 1831.2 | 1849.7 |
| 45° | 1589.7 | 1618.0 | 1679.6 | 1749.9 | 1772.0 |
| 47.5° | 1492.3 | 1525.6 | 1592.1 | 1668.5 | 1693.2 |
| 50° | 1396.2 | 1429.5 | 1505.9 | 1584.7 | 1606.9 |
| 52.5° | 1292.7 | 1334.6 | 1415.9 | 1500.9 | 1523.1 |
| 55° | 1201.5 | 1236.0 | 1327.2 | 1414.7 | 1441.8 |
| 57.5° | 1094.3 | 1141.1 | 1238.5 | 1327.2 | 1353.1 |
| 60° | 999.4 | 1042.5 | 1146.0 | 1236.0 | 1265.6 |
| 62.5° | 903.3 | 947.6 | 1051.2 | 1153.4 | 1180.5 |
| 65° | 799.8 | 854.0 | 964.9 | 1059.8 | 1095.5 |
| 67.5° | 701.2 | 757.9 | 871.2 | 972.3 | 1009.3 |
| 70° | 603.8 | 661.7 | 785.0 | 888.5 | 918.1 |
| 72.5° | 507.7 | 568.1 | 696.2 | 797.3 | 831.8 |
| 75° | 406.7 | 474.4 | 611.2 | 709.8 | 732.0 |
| 77.5° | 311.8 | 386.9 | 525.0 | 591.5 | 607.5 |
| 80° | 223.0 | 305.6 | 419.0 | 467.0 | 479.4 |
| 82.5° | 146.6 | 226.7 | 313.0 | 338.9 | 335.2 |
| 85° | 78.9 | 141.7 | 183.6 | 187.3 | 187.3 |
| 87.5° | 30.8 | 56.7 | 57.9 | 44.4 | 41.9 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)