

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: P474648

Luminaire Tested: **24CZ2-120VHE-SQR-UNV-L835-CD1-U**

Issue Date: 01/28/2021

Test Information

Test Method: LM-79-08
Report Number: P474648
Test Lab: INNOVATION CENTER(G3)
Issue Date: 01/28/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: 24CZ2-120VHE-SQR-UNV-L835-CD1-U
Description: 2'X4' TROFFER LED MODULE, VERY HIGH EFFICIENCY,SQUARE LENS
Light Source: 3500K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 11379.8 lumens
Efficiency: N/A
Efficacy: 135.2 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.3 / 1.39
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

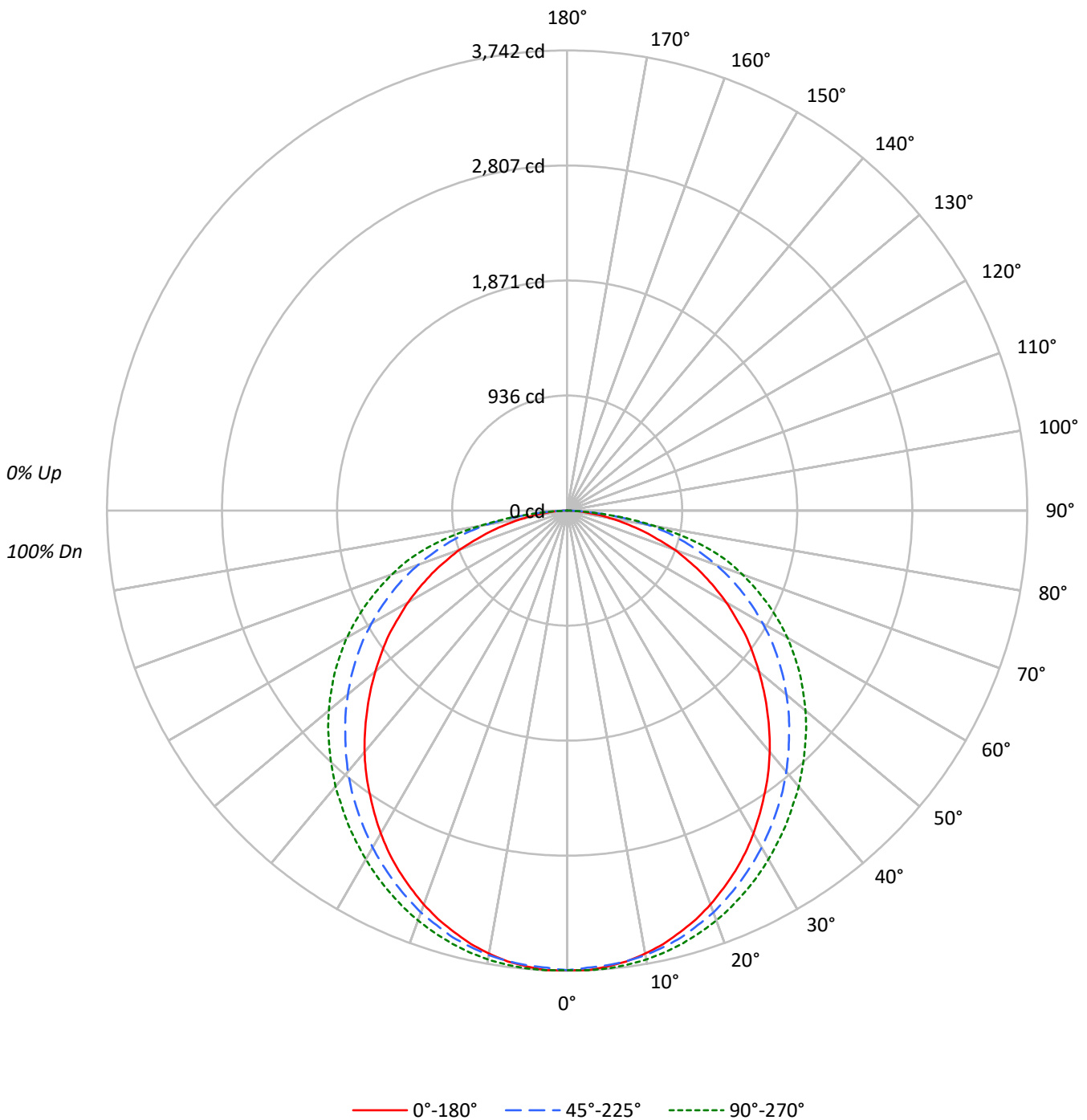
Input Watts (W): 84.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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 | 87 | 84 | 82 |
| 2 | 98 | 89 | 82 | 76 | 95 | 87 | 81 | 75 | 84 | 78 | 73 | 80 | 76 | 71 | 77 | 73 | 70 | 68 |
| 3 | 89 | 78 | 69 | 62 | 86 | 76 | 68 | 62 | 73 | 66 | 61 | 70 | 64 | 60 | 68 | 63 | 59 | 56 |
| 4 | 81 | 69 | 59 | 53 | 79 | 67 | 59 | 52 | 65 | 57 | 51 | 62 | 56 | 51 | 60 | 55 | 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 | 39 | 50 | 43 | 38 | 49 | 43 | 38 | 36 |
| 7 | 64 | 50 | 41 | 34 | 62 | 49 | 40 | 34 | 47 | 40 | 34 | 46 | 39 | 34 | 44 | 38 | 33 | 31 |
| 8 | 59 | 45 | 37 | 31 | 58 | 45 | 36 | 31 | 43 | 36 | 30 | 42 | 35 | 30 | 41 | 35 | 30 | 28 |
| 9 | 55 | 42 | 33 | 28 | 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 | 25 | 35 | 29 | 24 | 23 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|-------|-------|-------|
| 0° | 10059 | 10059 | 10059 |
| 5° | 10058 | 10028 | 10097 |
| 10° | 9995 | 10030 | 10129 |
| 15° | 9887 | 10008 | 10145 |
| 20° | 9762 | 9960 | 10157 |
| 25° | 9603 | 9889 | 10159 |
| 30° | 9417 | 9830 | 10174 |
| 35° | 9203 | 9771 | 10213 |
| 40° | 9005 | 9739 | 10295 |
| 45° | 8759 | 9714 | 10406 |
| 50° | 8524 | 9742 | 10595 |
| 55° | 8325 | 9809 | 10832 |
| 60° | 8043 | 9882 | 11135 |
| 65° | 7721 | 10002 | 11472 |
| 70° | 7323 | 10142 | 11929 |
| 75° | 6560 | 10283 | 12325 |
| 80° | 5521 | 10312 | 11186 |
| 85° | 4097 | 7802 | 7355 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 354.2 | 3.1 |
| 10°-20° | 1015.2 | 8.9 |
| 20°-30° | 1536.8 | 13.5 |
| 30°-40° | 1859.0 | 16.3 |
| 40°-50° | 1962.4 | 17.2 |
| 50°-60° | 1850.5 | 16.3 |
| 60°-70° | 1525.6 | 13.4 |
| 70°-80° | 1000.9 | 8.8 |
| 80°-90° | 275.2 | 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° | 2906.2 | 25.5 |
| 0°-40° | 4765.2 | 41.9 |
| 0°-60° | 8578.1 | 75.4 |
| 0°-90° | 11379.8 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 11379.8 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 3738 | 3738 | 3738 | 3738 | 3738 | |
| 5° | 3723 | 3723 | 3712 | 3738 | 3738 | 353 |
| 15° | 3549 | 3569 | 3592 | 3634 | 3642 | 1001 |
| 25° | 3234 | 3274 | 3331 | 3400 | 3422 | 1489 |
| 35° | 2802 | 2874 | 2974 | 3076 | 3109 | 1754 |
| 45° | 2302 | 2405 | 2552 | 2689 | 2734 | 1776 |
| 55° | 1774 | 1900 | 2091 | 2247 | 2309 | 1581 |
| 65° | 1213 | 1358 | 1571 | 1738 | 1802 | 1197 |
| 75° | 631 | 793 | 989 | 1145 | 1185 | 667 |
| 85° | 133 | 229 | 253 | 245 | 238 | 165 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P474648

CATALOG NUMBER: 24CZ2-120VHE-SQR-UNV-L835-CD1-U

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 3737.9 | 3737.9 | 3737.9 | 3737.9 | 3737.9 |
| 2.5° | 3741.5 | 3737.9 | 3721.5 | 3743.3 | 3741.5 |
| 5° | 3723.3 | 3723.3 | 3712.4 | 3737.9 | 3737.9 |
| 7.5° | 3697.9 | 3699.7 | 3696.1 | 3725.2 | 3725.2 |
| 10° | 3657.9 | 3665.2 | 3670.6 | 3703.3 | 3707.0 |
| 12.5° | 3610.6 | 3623.3 | 3634.3 | 3674.3 | 3677.9 |
| 15° | 3548.8 | 3568.8 | 3592.4 | 3634.3 | 3641.5 |
| 17.5° | 3485.2 | 3508.8 | 3534.3 | 3588.8 | 3597.9 |
| 20° | 3408.8 | 3436.1 | 3477.9 | 3532.4 | 3547.0 |
| 22.5° | 3323.4 | 3361.6 | 3405.2 | 3470.6 | 3488.8 |
| 25° | 3234.3 | 3274.3 | 3330.6 | 3399.7 | 3421.5 |
| 27.5° | 3137.9 | 3185.2 | 3248.8 | 3328.8 | 3352.5 |
| 30° | 3030.7 | 3085.2 | 3163.4 | 3248.8 | 3274.3 |
| 32.5° | 2918.0 | 2981.6 | 3068.8 | 3163.4 | 3192.5 |
| 35° | 2801.6 | 2874.3 | 2974.3 | 3076.1 | 3108.8 |
| 37.5° | 2687.1 | 2759.8 | 2878.0 | 2985.2 | 3016.1 |
| 40° | 2563.4 | 2643.4 | 2772.5 | 2887.0 | 2930.7 |
| 42.5° | 2432.5 | 2527.1 | 2663.4 | 2790.7 | 2832.5 |
| 45° | 2301.6 | 2405.3 | 2552.5 | 2688.9 | 2734.3 |
| 47.5° | 2168.9 | 2283.5 | 2445.3 | 2583.4 | 2636.2 |
| 50° | 2036.2 | 2158.0 | 2327.1 | 2476.2 | 2530.7 |
| 52.5° | 1901.7 | 2028.9 | 2212.6 | 2370.7 | 2419.8 |
| 55° | 1774.4 | 1899.8 | 2090.7 | 2247.1 | 2308.9 |
| 57.5° | 1627.1 | 1769.0 | 1970.8 | 2128.9 | 2188.9 |
| 60° | 1494.4 | 1632.6 | 1836.2 | 2003.5 | 2068.9 |
| 62.5° | 1350.8 | 1492.6 | 1707.1 | 1874.4 | 1938.0 |
| 65° | 1212.6 | 1358.1 | 1570.8 | 1738.0 | 1801.7 |
| 67.5° | 1063.6 | 1216.3 | 1434.4 | 1596.2 | 1658.1 |
| 70° | 930.8 | 1074.5 | 1289.0 | 1454.4 | 1516.2 |
| 72.5° | 769.0 | 932.7 | 1138.1 | 1301.7 | 1369.0 |
| 75° | 630.9 | 792.7 | 989.0 | 1145.4 | 1185.4 |
| 77.5° | 485.4 | 647.2 | 841.8 | 943.6 | 970.8 |
| 80° | 356.3 | 509.1 | 665.4 | 719.9 | 721.8 |
| 82.5° | 240.0 | 374.5 | 463.6 | 490.9 | 487.2 |
| 85° | 132.7 | 229.1 | 252.7 | 245.4 | 238.2 |
| 87.5° | 54.5 | 76.4 | 61.8 | 43.6 | 34.5 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)