

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: P474959

Luminaire Tested: **22CZ2-90VHE-S-UNV-L840-CD1-U**

Issue Date: 02/10/2021

Test Information

Test Method: LM-79-08
Report Number: P474959
Test Lab: INNOVATION CENTER(G3)
Issue Date: 02/10/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: 22CZ2-90VHE-S-UNV-L840-CD1-U
Description: 2'X2' TROFFER LED MODULE, VERY HIGH EFFICIENCY,SMOOTH LENS
Light Source: 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9344.6 lumens
Efficiency: N/A
Efficacy: 140.1 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.25 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

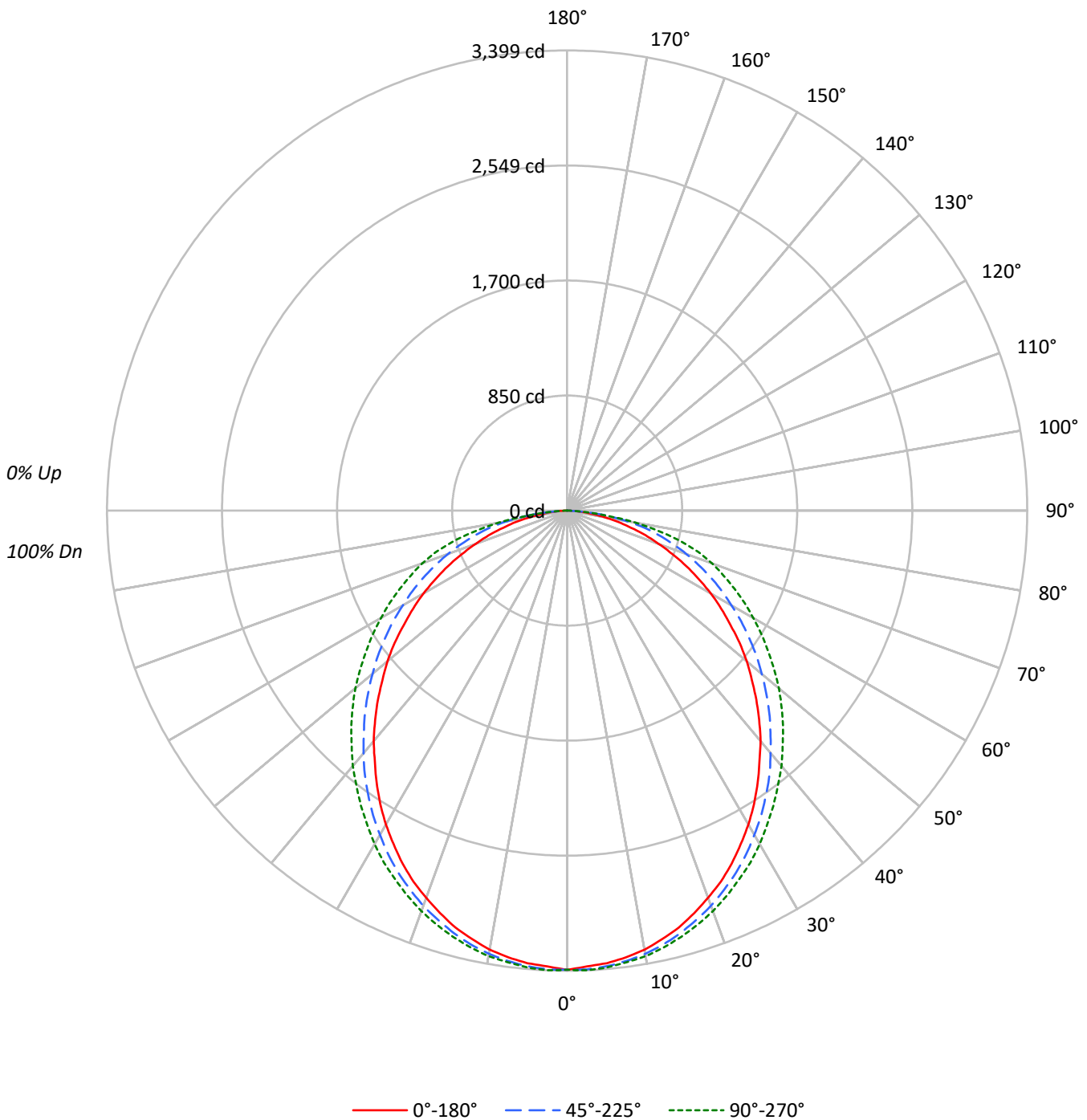
Input Watts (W): 66.7
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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 | 109 | 104 | 99 | 95 | 106 | 101 | 97 | 94 | 97 | 94 | 91 | 93 | 91 | 88 | 90 | 88 | 86 | 83 |
| 2 | 99 | 90 | 83 | 77 | 96 | 88 | 82 | 77 | 85 | 79 | 75 | 81 | 77 | 73 | 78 | 75 | 71 | 69 |
| 3 | 90 | 79 | 71 | 64 | 87 | 78 | 70 | 64 | 75 | 68 | 63 | 72 | 66 | 61 | 69 | 64 | 60 | 58 |
| 4 | 82 | 70 | 61 | 54 | 80 | 69 | 60 | 54 | 66 | 59 | 53 | 64 | 58 | 53 | 62 | 56 | 52 | 50 |
| 5 | 76 | 63 | 54 | 47 | 74 | 62 | 53 | 47 | 59 | 52 | 46 | 57 | 51 | 46 | 56 | 50 | 45 | 43 |
| 6 | 70 | 56 | 47 | 41 | 68 | 55 | 47 | 41 | 54 | 46 | 40 | 52 | 45 | 40 | 50 | 44 | 40 | 38 |
| 7 | 65 | 51 | 42 | 36 | 63 | 50 | 42 | 36 | 49 | 41 | 36 | 47 | 41 | 36 | 46 | 40 | 35 | 33 |
| 8 | 60 | 47 | 38 | 32 | 59 | 46 | 38 | 32 | 45 | 37 | 32 | 43 | 37 | 32 | 42 | 36 | 32 | 30 |
| 9 | 56 | 43 | 35 | 29 | 55 | 42 | 34 | 29 | 41 | 34 | 29 | 40 | 33 | 29 | 39 | 33 | 29 | 27 |
| 10 | 53 | 40 | 32 | 26 | 52 | 39 | 32 | 26 | 38 | 31 | 26 | 37 | 31 | 26 | 36 | 30 | 26 | 24 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 9128 | 9128 | 9128 |
| 5° | 9065 | 9126 | 9151 |
| 10° | 8997 | 9083 | 9133 |
| 15° | 8883 | 9003 | 9078 |
| 20° | 8716 | 8898 | 9014 |
| 25° | 8541 | 8762 | 8924 |
| 30° | 8320 | 8594 | 8840 |
| 35° | 8060 | 8417 | 8729 |
| 40° | 7809 | 8214 | 8651 |
| 45° | 7521 | 8038 | 8580 |
| 50° | 7252 | 7857 | 8549 |
| 55° | 6907 | 7703 | 8509 |
| 60° | 6597 | 7546 | 8544 |
| 65° | 6192 | 7459 | 8669 |
| 70° | 5658 | 7366 | 8950 |
| 75° | 5079 | 7312 | 8958 |
| 80° | 4276 | 6904 | 7954 |
| 85° | 3211 | 4678 | 4329 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 320.4 | 3.4 |
| 10°-20° | 909.9 | 9.7 |
| 20°-30° | 1356.6 | 14.5 |
| 30°-40° | 1600.7 | 17.1 |
| 40°-50° | 1630.9 | 17.5 |
| 50°-60° | 1470.8 | 15.7 |
| 60°-70° | 1155.1 | 12.4 |
| 70°-80° | 722.2 | 7.7 |
| 80°-90° | 178.0 | 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° | 2586.9 | 27.7 |
| 0°-40° | 4187.6 | 44.8 |
| 0°-60° | 7289.3 | 78.0 |
| 0°-90° | 9344.6 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 9344.6 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 3392 | 3392 | 3392 | 3392 | 3392 | |
| 5° | 3356 | 3363 | 3378 | 3385 | 3388 | 318 |
| 15° | 3188 | 3200 | 3232 | 3254 | 3259 | 898 |
| 25° | 2876 | 2892 | 2951 | 2994 | 3005 | 1324 |
| 35° | 2454 | 2488 | 2562 | 2632 | 2657 | 1534 |
| 45° | 1976 | 2010 | 2112 | 2214 | 2255 | 1525 |
| 55° | 1472 | 1520 | 1642 | 1768 | 1814 | 1320 |
| 65° | 972 | 1024 | 1171 | 1303 | 1361 | 960 |
| 75° | 488 | 556 | 703 | 823 | 862 | 522 |
| 85° | 104 | 133 | 152 | 149 | 140 | 127 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P474959

CATALOG NUMBER: 22CZ2-90VHE-S-UNV-L840-CD1-U

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 3392.1 | 3392.1 | 3392.1 | 3392.1 | 3392.1 |
| 2.5° | 3369.5 | 3376.2 | 3392.1 | 3398.9 | 3398.9 |
| 5° | 3355.9 | 3362.7 | 3378.5 | 3385.3 | 3387.5 |
| 7.5° | 3328.8 | 3337.8 | 3355.9 | 3364.9 | 3364.9 |
| 10° | 3292.6 | 3303.9 | 3324.2 | 3337.8 | 3342.3 |
| 12.5° | 3242.8 | 3256.4 | 3283.5 | 3299.4 | 3303.9 |
| 15° | 3188.5 | 3199.9 | 3231.5 | 3254.1 | 3258.6 |
| 17.5° | 3118.4 | 3136.5 | 3170.5 | 3199.9 | 3206.6 |
| 20° | 3043.8 | 3064.2 | 3107.1 | 3141.1 | 3147.8 |
| 22.5° | 2966.9 | 2982.8 | 3030.3 | 3071.0 | 3080.0 |
| 25° | 2876.5 | 2892.3 | 2951.1 | 2994.1 | 3005.4 |
| 27.5° | 2777.0 | 2804.1 | 2862.9 | 2912.7 | 2930.7 |
| 30° | 2677.5 | 2704.6 | 2765.7 | 2824.5 | 2844.8 |
| 32.5° | 2568.9 | 2598.3 | 2668.4 | 2729.5 | 2749.8 |
| 35° | 2453.6 | 2487.5 | 2562.1 | 2632.2 | 2657.1 |
| 37.5° | 2333.7 | 2372.2 | 2455.9 | 2530.5 | 2557.6 |
| 40° | 2222.9 | 2250.1 | 2338.3 | 2424.2 | 2462.6 |
| 42.5° | 2098.6 | 2134.7 | 2222.9 | 2320.2 | 2356.4 |
| 45° | 1976.4 | 2010.4 | 2112.1 | 2213.9 | 2254.6 |
| 47.5° | 1849.8 | 1892.8 | 1994.5 | 2107.6 | 2148.3 |
| 50° | 1732.2 | 1768.4 | 1876.9 | 1996.8 | 2042.0 |
| 52.5° | 1605.6 | 1644.0 | 1761.6 | 1886.0 | 1926.7 |
| 55° | 1472.2 | 1519.6 | 1641.8 | 1768.4 | 1813.6 |
| 57.5° | 1350.0 | 1395.3 | 1524.2 | 1655.3 | 1702.8 |
| 60° | 1225.7 | 1270.9 | 1402.1 | 1535.5 | 1587.5 |
| 62.5° | 1094.5 | 1146.5 | 1289.0 | 1417.9 | 1476.7 |
| 65° | 972.4 | 1024.4 | 1171.4 | 1302.6 | 1361.4 |
| 67.5° | 843.5 | 904.6 | 1051.5 | 1189.5 | 1248.3 |
| 70° | 719.1 | 791.5 | 936.2 | 1071.9 | 1137.5 |
| 72.5° | 608.3 | 667.1 | 818.6 | 961.1 | 1015.4 |
| 75° | 488.5 | 556.3 | 703.3 | 823.1 | 861.6 |
| 77.5° | 386.7 | 445.5 | 585.7 | 664.8 | 689.7 |
| 80° | 275.9 | 341.5 | 445.5 | 493.0 | 513.3 |
| 82.5° | 183.2 | 237.4 | 303.0 | 312.1 | 307.5 |
| 85° | 104.0 | 133.4 | 151.5 | 149.3 | 140.2 |
| 87.5° | 40.7 | 45.2 | 33.9 | 20.4 | 15.8 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)