

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: P474695

Luminaire Tested: **24CZ2-105VHE-SQR-UNV-L840-CD1-U**

Issue Date: 01/28/2021

Test Information

Test Method: LM-79-08
Report Number: P474695
Test Lab: INNOVATION CENTER(G3)
Issue Date: 01/28/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: 24CZ2-105VHE-SQR-UNV-L840-CD1-U
Description: 2'X4' TROFFER LED MODULE, VERY HIGH EFFICIENCY,SQUARE LENS
Light Source: 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 10242.6 lumens
Efficiency: N/A
Efficacy: 135.3 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

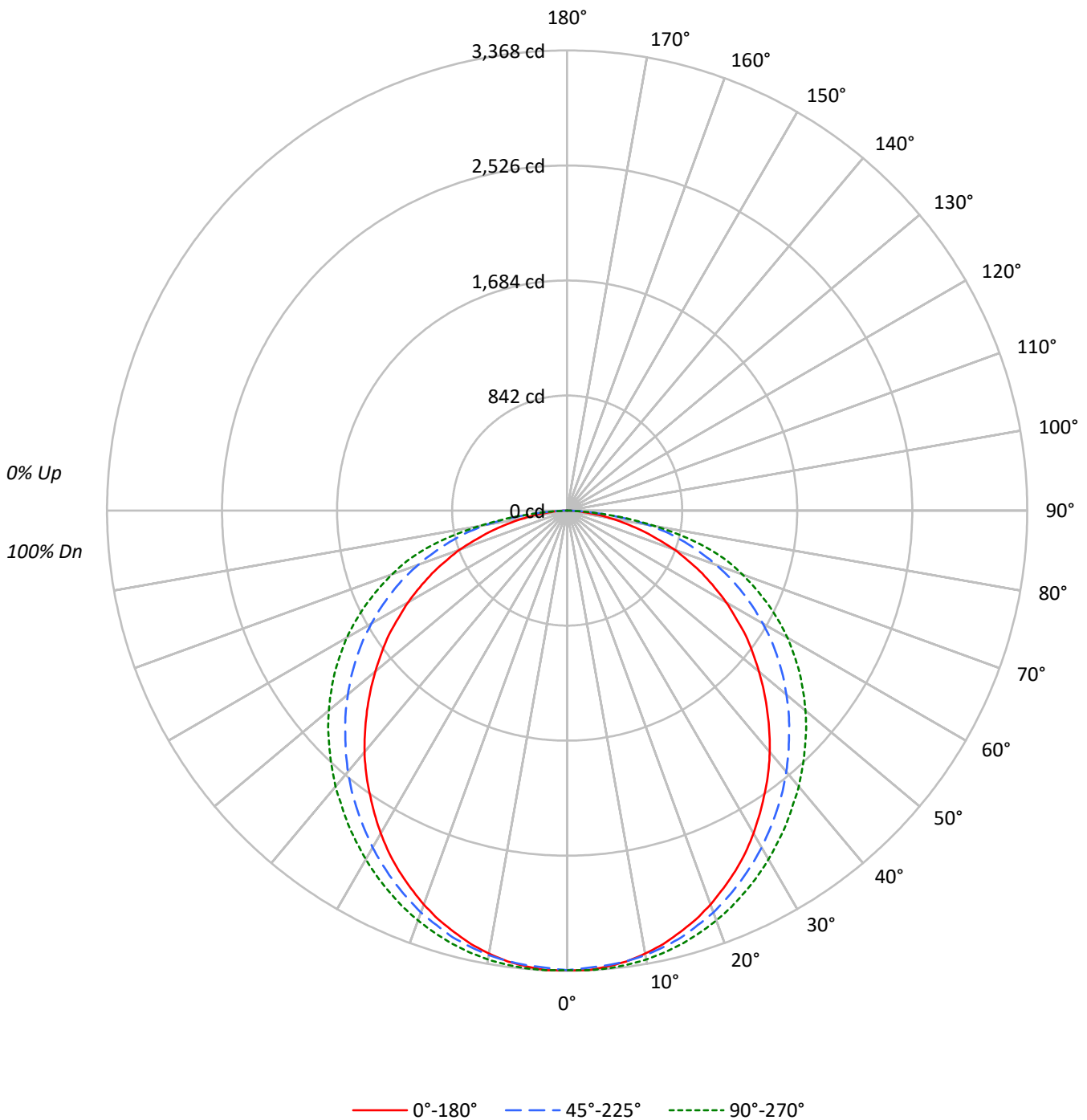
Input Watts (W): 75.7
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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 | 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° | 9054 | 9054 | 9054 |
| 5° | 9053 | 9026 | 9088 |
| 10° | 8996 | 9028 | 9117 |
| 15° | 8899 | 9008 | 9131 |
| 20° | 8786 | 8964 | 9142 |
| 25° | 8644 | 8901 | 9144 |
| 30° | 8476 | 8847 | 9157 |
| 35° | 8284 | 8794 | 9192 |
| 40° | 8105 | 8766 | 9266 |
| 45° | 7884 | 8743 | 9366 |
| 50° | 7672 | 8768 | 9536 |
| 55° | 7493 | 8829 | 9750 |
| 60° | 7239 | 8895 | 10022 |
| 65° | 6950 | 9002 | 10325 |
| 70° | 6592 | 9128 | 10737 |
| 75° | 5903 | 9256 | 11093 |
| 80° | 4970 | 9281 | 10067 |
| 85° | 3690 | 7024 | 6620 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 318.8 | 3.1 |
| 10°-20° | 913.7 | 8.9 |
| 20°-30° | 1383.2 | 13.5 |
| 30°-40° | 1673.3 | 16.3 |
| 40°-50° | 1766.2 | 17.2 |
| 50°-60° | 1665.6 | 16.3 |
| 60°-70° | 1373.2 | 13.4 |
| 70°-80° | 900.8 | 8.8 |
| 80°-90° | 247.7 | 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° | 2615.8 | 25.5 |
| 0°-40° | 4289.0 | 41.9 |
| 0°-60° | 7720.9 | 75.4 |
| 0°-90° | 10242.6 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 10242.6 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 3364 | 3364 | 3364 | 3364 | 3364 | |
| 5° | 3351 | 3351 | 3341 | 3364 | 3364 | 318 |
| 15° | 3194 | 3212 | 3233 | 3271 | 3278 | 901 |
| 25° | 2911 | 2947 | 2998 | 3060 | 3080 | 1341 |
| 35° | 2522 | 2587 | 2677 | 2769 | 2798 | 1579 |
| 45° | 2072 | 2165 | 2297 | 2420 | 2461 | 1599 |
| 55° | 1597 | 1710 | 1882 | 2022 | 2078 | 1423 |
| 65° | 1092 | 1222 | 1414 | 1564 | 1622 | 1078 |
| 75° | 568 | 714 | 890 | 1031 | 1067 | 600 |
| 85° | 120 | 206 | 228 | 221 | 214 | 148 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P474695

CATALOG NUMBER: 24CZ2-105VHE-SQR-UNV-L840-CD1-U

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 3364.4 | 3364.4 | 3364.4 | 3364.4 | 3364.4 |
| 2.5° | 3367.6 | 3364.4 | 3349.6 | 3369.3 | 3367.6 |
| 5° | 3351.3 | 3351.3 | 3341.4 | 3364.4 | 3364.4 |
| 7.5° | 3328.4 | 3330.0 | 3326.7 | 3352.9 | 3352.9 |
| 10° | 3292.4 | 3298.9 | 3303.8 | 3333.3 | 3336.5 |
| 12.5° | 3249.8 | 3261.3 | 3271.1 | 3307.1 | 3310.4 |
| 15° | 3194.2 | 3212.2 | 3233.4 | 3271.1 | 3277.6 |
| 17.5° | 3136.9 | 3158.2 | 3181.1 | 3230.2 | 3238.4 |
| 20° | 3068.2 | 3092.7 | 3130.4 | 3179.4 | 3192.5 |
| 22.5° | 2991.3 | 3025.6 | 3064.9 | 3123.8 | 3140.2 |
| 25° | 2911.1 | 2947.1 | 2997.8 | 3060.0 | 3079.6 |
| 27.5° | 2824.4 | 2866.9 | 2924.2 | 2996.2 | 3017.4 |
| 30° | 2727.8 | 2776.9 | 2847.3 | 2924.2 | 2947.1 |
| 32.5° | 2626.4 | 2683.6 | 2762.2 | 2847.3 | 2873.4 |
| 35° | 2521.6 | 2587.1 | 2677.1 | 2768.7 | 2798.2 |
| 37.5° | 2418.5 | 2484.0 | 2590.4 | 2686.9 | 2714.7 |
| 40° | 2307.3 | 2379.3 | 2495.4 | 2598.5 | 2637.8 |
| 42.5° | 2189.4 | 2274.5 | 2397.3 | 2511.8 | 2549.4 |
| 45° | 2071.6 | 2164.9 | 2297.4 | 2420.2 | 2461.1 |
| 47.5° | 1952.2 | 2055.3 | 2200.9 | 2325.3 | 2372.7 |
| 50° | 1832.7 | 1942.4 | 2094.5 | 2228.7 | 2277.8 |
| 52.5° | 1711.6 | 1826.2 | 1991.4 | 2133.8 | 2178.0 |
| 55° | 1597.1 | 1710.0 | 1881.8 | 2022.5 | 2078.2 |
| 57.5° | 1464.5 | 1592.2 | 1773.8 | 1916.2 | 1970.2 |
| 60° | 1345.1 | 1469.5 | 1652.7 | 1803.3 | 1862.2 |
| 62.5° | 1215.8 | 1343.5 | 1536.5 | 1687.1 | 1744.4 |
| 65° | 1091.5 | 1222.4 | 1413.8 | 1564.4 | 1621.6 |
| 67.5° | 957.3 | 1094.7 | 1291.1 | 1436.7 | 1492.4 |
| 70° | 837.8 | 967.1 | 1160.2 | 1309.1 | 1364.7 |
| 72.5° | 692.2 | 839.5 | 1024.4 | 1171.6 | 1232.2 |
| 75° | 567.8 | 713.5 | 890.2 | 1030.9 | 1066.9 |
| 77.5° | 436.9 | 582.5 | 757.6 | 849.3 | 873.8 |
| 80° | 320.7 | 458.2 | 598.9 | 648.0 | 649.6 |
| 82.5° | 216.0 | 337.1 | 417.3 | 441.8 | 438.5 |
| 85° | 119.5 | 206.2 | 227.5 | 220.9 | 214.4 |
| 87.5° | 49.1 | 68.7 | 55.6 | 39.3 | 31.1 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)